EXHIBIT 3

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

SOLAS OLED LTD.,
Plaintiff,
v. Case No.
SAMSUNG DISPLAY CO., LTD., SAMSUNG ELECTRONICS CO., LTD., AND SAMSUNG ELECTRONICS AMERICA, INC., 2:21-cv-00104-JRG
Defendants.

REPORTER'S CERTIFICATION
VIDEOTAPED ORAL DEPOSITION OF RICHARD A. FLASCK
Taken on January 19, 2022 at 1:01 p.m. EST

Job No. 424490
Pages 1 - 228

A P P E A R A N C E S

ON BEHALF OF THE PLAINTIFF SOLAS OLED LTD.:

JAMES S. TSUEI, ESQ.
RUSS AUGUST & KABAT
12424 Wilshire Boulevard
Suite 1200
Los Angeles, CA 90025
(310) 826-7474

ON BEHALF OF DEFENDANTS SAMSUNG DISPLAY CO., LTD., SAMSUNG ELECTRONICS CO., LTD., AND SAMSUNG ELECTRONICS AMERICA, INC.:

JARED FRISCH, ESQ.
DANIEL CHO, ESQ.
BOB HASLAM, ESQ.
COVINGTON & BURLING, LLP
850 Tenth Street, NW
OneCity Center
Washington, DC 20001
(202) 662-6000

PLANET DEPOS VIDEOGRAPHER DREW HALTON
PLANET DEPOS REMOTE TECH JAIMIE HENSLEY

I N D E X

RICHARD A. FLASCK		PAGE
Examination by Mr. Frisch		6
Examination by Mr. Tsuei		205
Examination by Mr. Frisch		221

E X H I B I T S

Flasck	DESCRIPTION	PAGE
Exhibit 1	Declaration of Richard A. Flasck Regarding Claim Construction of Certain Terms of U.S. Patent Nos. 7,499,042 and 7,663,615	12
Exhibit 2	Corrected Declaration of Richard A. Flasck Regarding Claim Construction of Certain Terms of U.S. Patent Nos. 7,499,042 and 7,663,615	14
Exhibit 3	Updated CV of witness.	23
Exhibit 4	U.S. Patent No. 7,663,615	34
Exhibit 5	Copy of the '042 patent.	38
Exhibit 6	Declaration of Richard A. Flasck in Support of Solas's Opening Claim Construction Brief	95

E X H I B I T S

Flasck	DESCRIPTION	PAGE
Exhibit 7	Portions of the concise Oxford English Dictionary.	96
Exhibit 8	A copy of select portions from the Microsoft Encarta College Dictionary.	98
Exhibit 9	figure marked on by Attorney Frisch	127
Exhibit 10	U.S. Patent No. 7,944,414	129
Exhibit 11	Joint Claim Construction and Prehearing Statement.	187
Exhibit 12	HP declaration.	188

5

P R O C E E D I N G S
THE VIDEOGRAPHER: Here begins Disk Number 1 in the video deposition of Richard A. Flasck in the matter of Solas OLED Ltd. versus Samsung Co., Ltd., et al., in the U.S. District Court, Eastern District of Texas, Marshall Division, Case No. 2:21-CV-00104-JRG.
Today's date is January 19th, 2022. The time on the video monitor is 1:02 p.m. Eastern.
The videographer is Drew Halton representing Planet Depos.
All participants are attending remotely.
Would counsel please voice-identify themselves and state whom they represent.
MR. FRISCH: Jared Frisch of Covington & Burling, representing defendants, and with me today are my colleagues, Daniel Cho and Bob Haslam.
MR. TSUEI: Hi, there. This is James Tsuei from Russ August & Kabat, here on behalf of plaintiff, Solas OLED Limited, and defending the witness, Mr. Flasck, today.
THE VIDEOGRAPHER: The court reporter is

6

April Reid, representing Planet Depos.
Would the reporter please swear in the witness.
THEREUPON:
RICHARD A. FLASCK
being first duly sworn or affirmed to testify to the truth, the whole truth, and nothing but the truth, was examined and testified as follows:
THE COURT REPORTER: Thank you, sir.
We may begin.
EXAMINATION
BY MR. FRISCH:
Q. Good morning, Mr. Flasck. Would you please state and spell your name for the record.
A. Richard A. Flasck, R-I-C-H-A-R-D, A., last name Flasck, F-L-A-S-C-K.
Q. What is your home address?
A. 10045 Nantucket Drive, San Ramon, California 94582.
Q. Is that where you're located today for the deposition?
A. Yes.
Q. And I know this is not your first deposition, because you and I have previously been

7

in a deposition together.
How many times have you been deposed?
A. Probably two dozen.
Q. How many of those depositions have been remote depositions like this one?
A. Probably eight to ten.
Q. Although this is a remote deposition, I'll aim to conduct it consistent with how we would do an in-person deposition.
So I'll be asking questions, and I expect that you'll answer them to the best of your ability. Is that fair?
A. Yes.
Q. You understand that even though this is a remote deposition, you're still under oath as if this deposition were being taken in person?
A. Yes.
Q. If you don't understand a question, please let me know and I'll attempt to clarify it. If you answer, I'm going to assume that you understood my question. Is that fair?
A. Yes.
Q. And I'll try to take breaks approximately every hour, but if you need a break at any time, just let me know and I will try to

8

accommodate. I would ask, however, that, before we take a break, you let me finish any active lines of questions. Is that fair?
A. Yes.
Q. I know you're at home today, but have you gathered any materials with you specifically for today's deposition?
A. No.
I -- every -- all the material that I have, written material, I've transported to the other side of the room.
I have my desktop computer on which I have my declaration and -- and the patents.
Q. So on your desktop computer you have a specific place that has your declaration and the patents for today's deposition?
A. Yes.
Q. Do you have any other documents in that specific folder for today's deposition?
A. In the folder? Let's see. There are -- in that particular folder -- I don't have them open, but in that particular folder I have a couple of other background pieces of information.
Q. And the copies of the patents and the declaration that you have, are those clean copies

9

or are those marked up in some way?
A. Those are clean copies.
Q. And do you have any other devices with you today besides your computer?
A. My cell phone is in the other room. And my land line I've put in a drawer in my desk here.
Q. I appreciate that. Thank you.
Do you have any communication utilities open on your desktop other than the Zoom platform that we're using for the deposition?
A. On my desktop I don't have anything else open.
On the -- I'm using my laptop for the Zoom. And I have -- let's see. I have my A -- my AOL open -- my -- my Firefox open, and AOL is running because I needed that to start the Zoom.
Q. And during today's deposition, I would just ask that you not engage in any communications with anyone other than through this Zoom session, for example, through some other chat function.
If someone does attempt to try to communicate with you during the deposition, will you let us know for the record?
A. Yes.
Q. Unless you do that, I'm going to assume

10

that you're not engaged in any offline communications. Is that fair?
A. That's fair.
Q. If you experience any technical difficulties with -- with using the video deposition platform, will you please note that for the record as well?
A. You mean today or in the past?
Q. Yes, today.
If you -- if you have any technical difficulties while we're in the deposition, if you could just note that for the record, we'll try to take a break.
A. That's fine, yes.
Q. And you understand that you're being deposed today with respect to opinions you provided with regard to two patents, U.S. Patent No. 7,499,042 and U.S. Patent No. 7,663,615; correct?
A. Yes.
Q. For purposes of today's deposition, is it okay if I refer to U.S. Patent No. 7,499,042 as the '042 patent?
A. Yes.
Q. And is it okay if I refer U.S. Patent

11

No. 7,663,615 as the '615 patent?
A. Yes.
Q. What did you do to prepare for today's deposition?
A. I read over my declaration, read over the patents, read over my previous declaration in the HP case that -- that involved similar claim constructions. I read over some of the exhibits and references that -- that were contained and referenced in my declaration. And I had -- I had a couple of Zoom meetings with -- with RAK Law.
Q. And how many Zoom meetings did you have with RAK Law?
A. One was very brief, but two total.
Q. And without getting into the substance of anything that was discussed on those calls, about how much time would you say in total between the two calls you spent talking to the attorneys from RAK Law?
A. Total of maybe two and a half hours.
Q. You mentioned a declaration from an HP case; is that right?
A. Yes.
Q. And there was previous litigation between Solas and HP that included a number of the

12

same patents that you're opining on today, and you provided a similar claim construction declaration in that matter; is that correct?
A. Yes.
Q. And that's the declaration you were referencing when you said you looked at the HP declaration?
A. Yes.
Q. And is it okay, for the rest of the deposition, if I call that the "HP declaration"?
A. Yes.
MR. FRISCH: If Ms. Hensley can pull up what was previously marked as tab 1 and mark it as Exhibit 1.
REMOTE TECHNICIAN: Certainly. Just a moment.
MR. FRISCH: Ms. Hensley, if you don't mind also circulating that to everyone on the Zoom in the chat function.
REMOTE TECHNICIAN: Absolutely. Just a moment, please.
MR. FRISCH: Thank you.
REMOTE TECHNICIAN: It should be available.
(Exhibit 1 was marked for identification

13

and is attached to the transcript.)
A. Okay. Do you mind if I use the copy that I have here on my laptop?
Q. No. I'm happy for you to use the copy that you have on your laptop.
A. Okay.
Q. Mr. Flasck, you understand that you submitted two declarations in this matter, an original declaration and a corrected declaration; right?
A. Yes.
Q. And do you recognize what's been marked as Exhibit 1 is a copy of your original declaration?
A. Yes.
Q. And if you turn to page 40 of Exhibit 1, is that a copy of your electronic signature?
A. Yes.
Q. And you electronically signed this original declaration on December 22nd in San Ramon, California?
A. Yes.
MR. FRISCH: Ms. Hensley, if you could also pull up what was originally marked as tab 2 and mark that as Exhibit 2.

14

(Exhibit 2 was marked for identification and is attached to the transcript.)
REMOTE TECHNICIAN: All right. Inputting that into the chat now.
BY MR. FRISCH:
Q. Mr. Flasck, if you don't mind letting me know when you're ready.
A. I'm ready.
Q. Do you recognize what's been marked as Exhibit 2 as a copy of your corrected declaration in this matter?
A. Yes.
Q. And if we turn to page 40 of your corrected declaration, is that a copy of your electronic signature again?
A. Yes.
Q. And you signed the corrected declaration on the same day as your original declaration, December 22nd, 2021?
A. I believe I signed it -- I'm sorry. One second. Yes.
Q. Okay. And you seemed to start off your answer another way. Did you think that you signed it a different day than December 22nd, 2021?
A. No.

15

I was momentarily looking at the -- page 41 of the certificate of service, and I saw December 23rd on the next page, and I -- it gave me pause for a second. But no, I -- my signature was -- was there on December 22nd.
Q. And perhaps to clarify that, I'll represent that it was served to us on December 23rd.
A. Okay.
Q. How much time passed between when you signed your original declaration and your corrected declaration?
MR. TSUEI: Objection, form.
A. Not much. Hours, probably.
Q. And why is it that you served a corrected declaration?
MR. TSUEI: Objection.
I'll caution the witness not to reveal confidential attorney-client privileged communications and attorney work product.
But to the extent the witness can answer without revealing that information, he may do so.
A. I realized that my -- that the CV that had been provided was an inop- -- an old CV, it

16

wasn't up to date, so I -- I -- I provided my updated CV to RAK Law. That was the difference between the two.
Q. Were there any other errors in your original declaration that you wanted to correct in your corrected declaration?
A. No.
Since then, after reviewing the corrected declaration, I did notice a couple of minor errors, but those were not corrected in the corrected declaration.
Q. Okay. And I'll get to those in a moment.
But looking at your original declaration on Roman numeral page II, there was a table of exhibits and abbreviations. And that, as far as I can tell, was removed from your corrected declaration; is that correct?
A. I'm sorry. Which -- which page are we on now?
Q. So if we're looking at Exhibit 1, your original declaration, and we look at Roman numeral page II, towards the top --
A. Roman numeral page II.
Q. Right there, yeah.

17

-- there's a table of exhibits and abbreviations. Do you see that?
A. Roman numeral II is qualifications. I don't...
Q. All right. So I think it's the page that's been put up on the screen right now.
A. I'm sorry. What -- what page is that?
Q. So when I'm looking at your original declaration, that is page 3 of the PDF and page II, Roman numeral II, of the document.
A. I'm confused. My -- my copy of the original declaration does not have that -- does not have that table.
Q. Okay. Did -- were you aware that your original declaration, at least as served to us, had this particular table in it?
A. No. The original declaration that -- that I was given and signed did not have that table on page 3.
Q. Okay. So the -- the document that was served on us was different than the version that you saw and signed?
MR. TSUEI: Objection, form.
A. Yes.
Q. Okay. Well, let's move to your

18

corrected declaration, Exhibit 2.
I think you stated earlier that there were a couple of typos that you noticed in your corrected declaration that hadn't been fixed; is that right?
A. Yes.
Q. And are you able to walk us through those particular typos so that we can fix those here today?
A. Realizing that I was not able to bring notes into the deposition with me, I'm relying on memory.
I believe one was on page 30 or 31. Let's get there. Yeah. Okay. On page 30, the table -- the -- the title on the left -- on the right-hand column of that table, it says "HP proposed construction." It should be Samsung proposed construction.
Q. And that's the table for the term "data lines"?
A. Yes.
Q. Do you know why it originally said HP's proposed construction?
A. Just a mistake.
Q. Did you originally take that portion out

19

of your HP declaration we talked about earlier?
MR. TSUEI: Objection, form.
A. No. I believe this is the correct Samsung proposed construction.
Q. Are there other errors that you remember?
A. There was one other error. It was just a -- a missing citation. And I can't recall exactly where it is. It wasn't a big deal, but it -- there was a missing citation to the patent.
Q. If you happen to see that while we're going through your declaration today, I would appreciate it if you would just flag it when you notice it.
A. Sure.
Q. If we turn to page 24 of your corrected declaration, Exhibit 2, do you see where it starts out, "Disputed terms for '615 patent..."?
A. Yes.
Q. And the first term that's listed there is "the operation."
Correct?
A. Yes.
Q. Are you aware that the term "the operation" is no longer in dispute between the

20

parties?
A. I was informed of that by RAK Law.
Q. Were you aware that it was no longer in dispute between the parties when this corrected declaration was served on us?
MR. TSUEI: Objection, form.
A. No.
Q. Do you recall when you first started working on your original declaration?
A. Well, I first started working on -- on these patents -- on claim construction for these patents several years ago.
For working on this declaration for this particular case was probably a couple months ago.
Q. Do you know approximately how many hours you spent working on the original declaration and the corrected declaration in total?
A. You're talking about specifically these for Samsung or total, including the other -- the past declarations on the same subject?
Q. Just for the declaration, the original declaration in this Samsung matter and the corrected declaration in this Samsung matter, do you know how much time you spent working on those two declarations?

21

A. I don't have a -- I don't have a firm number on that.
Q. Would you say it was more than 40 hours?
A. Probably a little more than 40 hours.
Q. Did you have any assistance in preparing your corrected declaration and your original declaration in this matter?
A. Well, the -- the opinions are my own. I did discuss those opinions with -- with RAK Law, and there was a back-and-forth in terms of editing and review during the -- during the operation. But in the final analysis, except for the legal section, you know, the -- the information and the opinions are mine.
Q. So outside of the legal section, you drafted the declaration in the first instance and then you were provided edits and comments?
A. In some instances I looked back on -- on my -- the declaration from the previous case and, you know, would sometimes lift -- lift verbiage from that.
But, yes, I -- I wrote the -- I wrote the declaration.
Q. And in what instances would you lift verbiage from the HP declaration?

22

A. I'm saying perhaps I did. I was certainly influenced by, you know -- by reading the previous HP declaration.
Q. Did you receive assistance from anyone other than the RAK Law attorneys in drafting your declarations?
A. No.
Q. So you didn't talk to any other experts in forming your opinions in the declaration?
A. No.
Q. If you look at the end of your corrected declaration, right after page 41 of Exhibit 2, there is an Exhibit A that has a copy of your CV. Do you see that?
A. Yes.
Q. And this is an old copy of your CV; correct?
A. I'm sorry. This is the corrected declaration that we're looking at?
Q. This is the corrected -- corrected declaration, that's right.
A. Yes.
Unfortunately, there are -- there's at least one case missing from -- from the list of cases that I worked on.

23

MR. FRISCH: And if we could please pull up what was previously marked as tab 14 and mark that as Exhibit 3.
(Exhibit 3 was marked for identification and is attached to the transcript.)
BY MR. FRISCH:
Q. Mr. Flasck, do you recognize Exhibit 3 as an updated copy of your CV?
THE WITNESS: Could you go to page 8, please. Thank you. One more.
A. Yes, that's a -- that's a copy of my current CV.
Q. So there are no other additions that you would need to make to this particular CV; is that correct?
A. That's correct.
Q. If we can turn back to Exhibit 2, your corrected declaration. And if we can focus on paragraph 2 for a moment.
You were asked to consider and opine on claim constructions for disputed claim terms in the '042 and '615 patents; correct?
A. I believe that's in the first paragraph.
Oh, I'm sorry. Yes, second paragraph. Yes.

24

Q. And in paragraph 3, you list a number of items that you say you reviewed, considered, and/or had access to; right?
A. Yes.
Q. And that list includes the patents?
A. Yes.
Q. And the prosecution histories?
A. Yes.
Q. And the parties' proposed claim constructions?
A. Yes.
Q. And the extrinsic evidence cited by the parties; right?
A. Yes.
Q. Now, you say that that's a list of items that you reviewed, considered, and/or had access to.
Was there anything that you had access to but you didn't consider or review?
A. Not that I can recall right now.
Q. Is there anything beyond this list that you have not already mentioned that you considered and/or reviewed when putting together your declarations?
A. No.

25

Q. Were you involved in the process of crafting Solas's proposed claim constructions?
A. To the extent that they were similar to the HP case, I was.
Q. And can you explain what you mean by that?
MR. TSUEI: I'll instruct the witness to be careful and not reveal the content of any attorney work product communication or attorney-client privileged communication.
With that said, Mr. Flasck, you can respond.
THE WITNESS: Could -- could -- could you read back the question.
Q. Well, let me -- let me start over a little bit.
So I had asked if you were involved in the process of crafting Solas' proposed claim constructions, and I believe you answered, "To the extent that they were similar to the HP case, I was." And I was wondering what you meant when you said that, to the extent they were similar to the HP case you were involved.
A. Okay. I guess the answer to your original question is yes.

26

Q. And without getting into the details of any conversations you had with attorneys, how were you involved in the process of coming up with Solas's proposed claim constructions?
A. Again, it was an iterative process of -- of sometimes writing reports or draft opinions and then having RAK Law review it, get back to me with questions. An editing process back and forth. That was the process.
Q. Okay. And you currently agree with the constructions that have been proposed by Solas; is that right?
A. My opinions are in my declaration.
Q. If you disagreed with a particular construction that Solas is putting forward, would you have noted that?
A. I'm -- I'm not sure what position Solas may have had at any particular point in time.
My opinions today are the opinions that appear in my declaration.
Q. Your declaration lists a number of claim constructions that Solas is currently putting forward in this matter; correct?
A. I've seen summaries of -- of claim construction -- I've seen summary documents of

27

proposed claim constructions. I don't believe I saw any final brief from -- from Solas as to what their latest claim constructions are.
Again, my opinion regarding the -- the proper constructions are in my declaration, regardless of whether those are Solas's current positions or not.
Q. If -- if we go, for instance, to page 13 of your corrected declaration, you have the term "the selection period" listed for the '042 patent; right?
A. Give me a second. Yes.
Q. And you have underneath the selection period a box that says "Solas's proposed construction."
Correct?
A. Yes.
Q. And for every term that you opine on in your declaration, you have a similar box setting forth Solas's proposed construction and Samsung's proposed construction; correct?
A. Yes.
Q. Okay. Now, if you disagreed with any of the positions that are provided in your declaration under Solas's proposed construction,

28

would you have set that disagreement in your declaration?
A. Yes.
Q. And your declaration was signed under penalty of perjury; correct?
A. Yes.
Q. And you would not accept a claim construction for purposes of your declaration that you did not agree with; right?
A. Yes.
Q. Let's turn to the technology background on page 5 of your corrected declaration, Exhibit 2.
A. All right.
Q. You start your background discussion by talking about semiconductor materials.
A. Yes.
Q. And one of the semiconductor materials you identify is silicon?
A. Yes.
Q. And polysilicon is a common semiconductor material used in semiconductor devices such as displays; right?
A. Yes.
Q. And semiconductors are different than

29

conductors, as their name implies; right?
A. Yes.
Q. And as you note here, semiconductor materials are useful because they can be doped to make them conductive; right?
A. It is true that they can be doped to make them more conductive.
Semiconductors are conductive to a -- to a certain extent in any case. You can dope them to increase the number of -- as I say here, increase the number of free electrons and holes and that will make them more conductive. That's one way of making a semiconductor material more conductive.
Q. What's another way to make them more conductive?
A. In a -- in a thin-film transistor, you can make the -- you can make the channel more conductive by -- by exposing it to an electric field.
Q. And a thin-film transistor uses that property to be able to turn on and off the channel, the semiconductor material; right?
A. The thin-film transistor, depending on the -- on the voltage on the gate, will

30

essentially modulate or change the conductance of the channel.
Q. Through the use of an electric field?
A. Yes.
Q. And so when the TFT is turned off, no current is meant to conduct through the channel; and when the TFT is turned on, the channel's meant to be conducted; right?
MR. TSUEI: Objection, form.
A. I would say that's essentially correct.
You know, there -- when a -- when a thin-film transistor is turned off, there -- there's going to be some amount of leakage through it that's usually negligible in regard to the operation of the circuit.
Q. And you want it to be negligible because otherwise the circuit wouldn't behave as designed; right?
A. Yes. That's correct.
Q. If we turn to page 8 of your declaration, your corrected declaration, Exhibit 2, you've provided a background of the asserted patents; right?
A. Yes.
Q. Okay. What is your understanding of the

31

problem that the '042 patent is trying to solve?
MR. TSUEI: Objection, form.
A. Well, as I say in paragraph 27, specifically the '042 patent recognizes that transistors of such can vary or degrade over time, leading to inconsistent pixel brightness. So the problem that -- that the '042 is attempting to address is -- is to alleviate that problem.
Q. And if we can break that down just to make sure I understand it.
So the '042 patent is addressing a problem wherein the channel resistance of the transistor can change based on time or external conditions; right?
MR. TSUEI: Objection, misstates testimony.
A. Again, I have a -- I've excerpted a section of the panel. I can read it.
But generally -- it says, generally, the channel resistance of a transistor changes in accordance with the change in the ambient temperature or changes when the transistor is used for a long time. It goes on to say, as a consequence, the threshold voltage changes with time.

32

So when the -- during the process of using the transistor, some transistors change -- there's a change in both the gate threshold voltage and in the channel resistance. And those two things can cause inconsistent pixel brightness on the display. And the '042 is attempting to -- to alleviate those problems.
Q. When you say "inconsistent pixel brightness," you mean, for instance, that two pixels next to each other could receive the same data but have different luminance value; is that right?
A. Yes.
That was a common problem in the -- in the 2 -- 2T1C standard OLED pixel circuit, where you would -- they would use voltage writing to the -- to the storage unit or the capacitor. And because of that and because of the -- the threshold voltage variation from transistor to transistor, depending on history, you could have two adjacent pixels that were written with the same voltage value but appeared with different brightnesses. So that would be the type of inconsistency that they're talking about.
Q. You talked about the 2T1C circuit.

33

That's -- that's a two transistor, one capacitor circuit?
A. Yes.
Q. You also talked about voltage writing. Is that the same as what the paragraph you've excerpted in -- in paragraph 27 of your report discusses as the conventional voltage control active matrix driving type?
A. Yes.
Q. So it -- it's using the term "voltage control" synonymous with how you were using the term "voltage writing"?
A. Yes.
Q. What is a voltage control active matrix type?
A. We're -- we're restricting ourselves to OLED technology; is that correct?
Q. Sure. Why don't we start there.
A. Okay.
May I pull up one of the patents here?
Q. Yes.
Is there a particular patent you want to pull up? We can mark it as an exhibit.
A. Let me -- it's in one of them, and I'm not sure which one. Let me take a quick look.

34

Q. I might be able to help you out.
MR. FRISCH: Why don't we pull up tab 4 and mark that as Exhibit 4.
(Exhibit 4 was marked for identification and is attached to the transcript.)
A. Okay.
Q. And, Mr. Flasck, do you recognize Exhibit 4 as a copy of the '615 patent?
A. Yes.
Q. If we go to the last figure, I believe it is Fig. 23 of the '615 patent, is this the figure you were looking for?
A. Yes. That's -- that's a 2T1C old art circuit.
Q. And I believe you were going to use this figure to explain to me what is meant by voltage control circuit.
A. Yes.
A voltage controlled or a voltage rating circuit, the -- a voltage, referring to this Fig. 23, a -- a voltage is -- is provided on the -- on the data line, the DLp line. Tr 111 is turned on. It transfers that voltage to node N111, which is connected to the gate of the drive transistor and the -- and a capacitor, Cp, so that the -- that

35

the capaci- -- and then the Tr 111 is turned off so that the -- that the voltage across Cp, across the storage capacitor, is determined directly by the voltage that was applied on DL sub p. So it is a voltage that's being written onto the gate and stored on the gate of the drive transistor Tr 112.
Now, a transistor like that will -- with a constant source gate voltage, will provide a -- in principle, a constant current. The problem is that the -- because of the history of -- the history of the -- the -- the history that the device has undergone, the threshold voltage and the channel conductance of TR 111 may change so that two adjacent pixels may have seen different histories; therefore, they're trans -- therefore, their threshold voltage and their channel resistance may have changed. And simply storing the same charge on the gate of those two transistors may well rely in different currents flowing through the drive transistors and, therefore, through the OEL device or the OLED device and causing different -- different brightnesses.
Q. So in this type of circuit, a voltage is

36

provided on the line DLp through transistor 111 on to the gate of transistor 112; is that correct?
A. Yes.
Q. Does any charge or current flow from that DLp line to the gate of transistor 112 during that process?
A. Depending what you mean by "to the gate of." The -- there's a voltage that's applied. The Vpix voltage up on top goes down the DLp line. And there is some current that flows through Tr 111 to node N111, and it -- it goes to two places. One is to charge up the -- the C sub p, the storage capacitor. And that's -- again, typically for these circuits, that's -- the capacitance is on the order of a half a pF, a half a picofarad to maybe one picofarad, in that range.
The other -- there will be some charge that's stored on the -- or put on the gate of transistor Tr 112, and that's because of the capacitance between the gate and the channel region.
But, typically, that -- that capacitance between the gate and the channel region is much, much smaller than the storage capacitor.
Now, maybe by an order, two orders,

37

maybe three orders of magnitude, depending on the design and the process used.

Q. So despite the fact that some current might flow from that DLp line, this is still known as a voltage control-type device because the image signal is coming in as a voltage; is that right?

A. The image signal is coming in as a voltage and the -- that voltage is directly stored on the gate of the drive transistor, yes.

Q. One of the ways that the '042 patent tries to solve the problems we've been discussing is to use a current written or current-controlled circuit instead of a voltage-controlled circuit; right?

A. Yes.

Q. And the '042 patent discloses a three-transistor, one-capacitor current-controlled circuit; right?

A. I believe many of the embodiments typified if -- for instance, in -- in Figs. 11 and -- 11 and 12, those are three-transistor, one-capacitor current-written devices.

Q. When you say Figs. 11 and 12, you're talking about Figs. 11 and 12 of the '615 patent?

A. Yes.

38

Q. And -- and just to be clear, my question was about the '042 patent.

A. Oh.

Q. The '042 patent --

A. I'm sorry. I'm sorry. Let me --

Q. And, actually, why don't we mark that now.

MR. FRISCH: If we can pull up what was previously marked as tab 3 and mark that as Exhibit 3.

REMOTE TECHNICIAN: I believe this will be Exhibit 5, Counsel.

MR. FRISCH: I'm sorry. Exhibit 5. Thank you.

(Exhibit 5 was marked for identification and is attached to the transcript.)

BY MR. FRISCH:

Q. Mr. Flasck, do you recognize what's been marked as Exhibit 5 as a copy of the '042 patent?

A. Yes.

Q. And going back to my previous questions, the '042 patent, one of the ways it tries to solve the problem we've been discussing is to use a current-controlled circuit; right?

A. Yes.

39

Q. And, in fact, it uses a three-transistor, one-capacitor circuit; right?

A. Yes.

MR. TSUEI: Objection, form.

A. The -- the drawings in Figs. 6, 7 and 8 are all one-capacitor, three-transistor -- or three-transistor, one-capacitor current-written circuits.

Q. What is the difference between a voltage-controlled circuit and a current-controlled circuit?

A. The general difference is that the -- the image data is supplied by a current rather than by a voltage.

If, for instance, you look at Fig. 7, you see that by configuring the three transistors in a particular way, there is a -- the V low is on top. It's on the Z line. And the IDAT is -- is being pulled out of the -- pulled out of a drain line by a -- by a data driver or a peripheral data driver. And by pulling a particular IDAT level that corresponds to a -- to a image signal, there will be that IDAT -- in this particular configuration, there will be that particular IDAT current flowing through the -- through line Z1

40

that goes through transistor 23. If you look at Fig. 7, it turns -- it turns west and goes through transistor 21 to the data line and then up the data line.

Now, during that process, you're forcing a -- a current to be drawn through the drive transistor 23. And that results in a -- a particular voltage being generated between the source and the gate of 23. The "source" being the lower electrode closest to the -- closest to the OLED device. So that when you're drawing that current corresponding to a image signal, there will be a voltage developed across capacitor 24, which is the -- which is a voltage between -- it doesn't have a node here, but it will be the voltage between the gate and the source of drive transistor 23.

So that then the -- then the transistors are reconfigured so that the charge across 24 is trapped and remains the voltage between the source and gate.

And then when -- during the writing process, in Fig. 8, when the Z line is taken high, that same voltage is across the source and gate so that the same current flows through the transistor

41

23 and, therefore, flows through the OLED light-emitting element down to VSS.

So the writing is done in a -- by a current which -- and as a secondary operation, traps a voltage across the -- across the capacitor, which then makes the capacity -- makes the drive transistor replicate that -- that same voltage that was originally being written.

And that's -- this is one -- this is a typical embodiment of -- not the only embodiment, but this is a typical embodiment of a -- of a current-written device.

Q. So looking at two circuits, how does one determine if it's voltage controlled or current controlled?

A. Well, there are certainly hints based on just the structure. But it also helps to look at the -- the timing diagrams for the -- you know, for the various transistors.

But I would say the -- the voltage written -- the voltage-written or voltage-controlled OLED devices are -- they're obsolete, they are passe. I don't think anybody uses -- uses that anymore.

Basically, the -- I believe all

42

commercial OLED devices use some form of current -- current writing or current control.

And, generally, the current control uses at least three -- I've seen current-controlled circuits at the pixel use four and five and even six transistors. But a good -- a good -- a good -- one good hint, just looking at the structure, is if there are -- if there are two -- if there are more than two transistors and if there's a capacitor between the source and the gate, those are two indicators that you're probably looking at a -- at a current-controlled circuit even without looking at the timing diagrams.

Q. But what it ultimately comes down to is whether the data is coming in as a voltage or a current; right?

A. Yes.

Q. If it's coming in as a voltage, it's a voltage-controlled circuit, and if it's coming in as a current, it's a current-controlled circuit?

A. Yes.

Q. If we look at claim 1 of the '042 patent, claim 1 is specifically claiming a current-controlled device; correct?

43

A. It says that the current lines are -- the current lines -- in the first part of the selection period and supplies a designating current, using a current value corresponding to a image signal.

So that, to me, says that it's a -- it's a current-written device.

Q. Okay. I want to go back to your corrected declaration at paragraph 27.

And in this paragraph, you talk about the fact that the '042 patent addresses problems with active-matrix OLED displays; right?

A. Yes.

Q. What is an active-matrix OLED display?

A. Well, "active matrix" refers to the configuration where there are circuit elements at the pixel that are not light-emitting elements. We're talking about, for instance, transistors and capacitors, switches, charge -- charge storage elements. And each of those -- each -- each of the pixel circuits manages the incoming information, stores the incoming information I -- during one writing period, and then traps that information and -- and makes the -- makes the electro-optic element active, you know, certain

44

state, even after the -- even after the, if you will, selection period moves on to other -- to other pixel circuits.

That particular pixel circuit that's been written keeps that information and forces the OLED, or the emission element, to continue -- to continue emitting at a certain level, even when it's not being actively addressed by the -- by the data lines.

So "active matrix" means there's a matrix, generally a two-dimensional matrix. And at the -- at the intersection of the rows and columns, you have pixels. And at -- in the region of those pixels, you have -- you have nonlinear and/or storage devices that -- that capture information and, even during the times when it's not being addressed, cause the -- cause the light emission element at that pixel to respond correctly.

Q. Thank you.

Let me break that down with a couple of follow-up questions.

So you talked about a two-dimensional matrix. By that, do you mean just a number of rows and columns?

45

A. Let's see.
Yeah. If you look at Fig. 1 of the --
of the '042, you'll see in the big lower square
there are four pixels, if you will, that are
representative of a two-dimensional matrix. You
see dot, dot, dots, you know, vertically and
horizontally, which means that's replicated.
There aren't just four pixels. There are more
than four. So you are talking about rows and
columns. So, you know, yes, this is a typical way
of -- of structuring a -- a two-dimensional active
matrix of writing.
Q. In looking at Fig. 1, I think you said it -- it identifies four pixels and then explicitly shows that it has other pixels kind of represented by the dot, dot, dot; right?
A. Yes.
Q. So there's two rows and two columns being shown, and the first row has a pixel that I believe's been labeled P1, 1, and the second pixel's been labeled P1, n; right?
A. Yes.
Q. And then there's the second row with two pixels. The first pixel on the left has been labeled Pm, 1, and then the second pixel on the

46

right has been labeled Pm, n; right?
A. Yes. In this -- in this embodiment,
there are multiple rows and columns, yes.
Q. And then each row of pixels is addressed by a scan line, and they're shown here as X1 through Xm?
A. Yes. In this embodiment, each -- each
row is addressed by the scan -- the selection scan
driver and the voltage supply driver.
Q. And then each column is connected to a current line in this particular embodiment, Y1 through Yn; right?
A. Yes, for this embodiment, that's --
that's how it's structured.
Q. Now, a second aspect of the alleged invention of the '042 patent is its particular driving method; right?
A. In general, that's correct, yes.
Q. In the alleged invention of the '042 patent, the driving circuit applies a reset voltage to each of the current lines, and then it follows up with a designating current on each of those current lines; right?
MR. TSUEI: Objection, form.
A. One second.

47

Yes, in -- in claim 1 it talks about the
data -- the data line -- the data driving circuit
applies a reset voltage, and after that it -- it
applies [sic] a designating current, yes.
Q. What is the purpose of the reset voltage?
A. I think it's just to take all the pixels
to the same level when they start off -- when they
start applying programming voltages.
It's to -- it's to provide a definite
starting point, if you will, or a -- or a uniform
initial state, is my understanding.
Q. The '042 patent talks about every pixel being reset; right?
A. I'm not sure that's a limitation of
the -- of the claim. I would have to...
But, you know, that would certainly make
sense.
Q. So after the reset voltage is applied to each of the current lines, it's followed by the corresponding designating current; right?
A. Yes.
Q. And that's because you first want to reset the pixel, as you were just discussing, and then you want to apply some sort of image data to

48

that pixel through the designating current; right?
A. Yeah. The designating current
corresponds to an image signal, yeah.
Q. Okay. So -- so each column of pixels is going to have its own current line?
A. Well, certainly the embodiment in
Fig. 1, that's -- that's how it's configured.
Q. There are no embodiments in the patent where each column does not have its own current line; right?
A. Again, I -- I was asked to opine on
construction, not on -- not on validity,
invalidity or infringement, non-infringement. So
I -- I -- I haven't looked at that particular
question.
But as -- to my knowledge, all of the --
to the best of my knowledge, all of the
embodiments in the '042 show one -- you know, one
data line per column.
Q. And you're using the current -- the term "data line" synonymous with "current line"; right?
A. Oh. I'm sorry. Yes.
Q. If we continue looking at claim 1 of the '042 patent -- I want to walk through that claim for a moment.

49

Are you there?
A. In a second.
All right.
Q. Okay. Claim 1 of the '042 patent is directed to a display device; right?
A. Yes.
Q. And a display device is the entire display, including the matrix of pixels that we've been discussing?
A. A display device includes the matrix of pixels, yes.
Q. And claim 1 requires the display device comprise a -- a number of different elements; right?
A. Yes.
Q. And first it requires that it comprise a plurality of selection scan lines?
A. Yes.
Q. And the selection scan lines are what are used to select the rows of pixels?
A. Yes.
Generally, in -- in the -- certainly in the embodiments that we've seen, the selection scan lines select -- selection scan lines select rows of pixels.

50

Q. And how about in the claim, claim 1, do they select rows of pixels, in your understanding?
A. Okay. The -- two, three, four...
The fifth limitation says, "A plurality of pixel circuits which are connected to said plurality of selection scan lines and -- and plurality of current lines."
It doesn't -- there is no particular structure or one-to-one correspondence between the pixels and the selection lines or -- or -- or current lines.
So I think -- again, I -- I think that the claim language may be broader than the -- or is broader than the particular embodiments that we've been looking at. But certainly in the embodiments we've been looking at, there is a scan line that has many pixel circuits attached to it.
Q. If you go -- go to the next limitation.
The display device has to comprise "a plurality of current lines."
Right?
A. I'm sorry. Where are we now?
Q. I'm back at -- looking at the claim. I'm on the second element --
A. Oh.

51

Q. -- "a plurality of current lines"?
A. Yes.
Q. And so -- just to clean up the question, so the display device also has to comprise a plurality of current lines?
A. Yes.
Q. And the current lines are what we talked about earlier, each of which is going to have that recent voltage followed by the designating current; right?
A. That's how the -- that's how the embodiments work. And I believe that's what's outlined in the -- in claim 1 later on.
Q. And then the next limitation is that the display device has to comprise a selection scan driver; right?
A. Yes.
Q. And the selection scan driver is going to sequentially select the plurality of selection scan lines in each selection period?
A. Yes.
Q. That's to update the display frame by frame?
MR. TSUEI: Objection, form.
A. That's to -- that's to allow data to be

52

written to -- to the pixels or to the pixel circuits.
Q. And the reason you're writing the data to the pixel circuits is to create a frame time's worth of image; right?
A. I think, in general, that's correct, yes.
Q. And that's why it sequentially selects the scan lines; right?
So that it can update the scan lines one at a time until it finishes a frame?
A. It says it sequentially selects a plurality of selection scan lines in each selection period.
Q. But it's going to update that plurality of selection scan lines sequentially until it finishes a frame's worth of data?
A. I don't think there's a limitation in the claim saying that it does that until there's a frame's worth of data, but that would certainly be reasonable in -- in the -- in some of the embodiments that we've seen in -- in the specification.
Q. And, generally, based on your understanding of how these types of displays work,

53

they work frame by frame and they update the data sequentially for each set of pixels until you have an entire frame of data; right?

A. I believe most displays load information into each pixel. And when they're done with a -- loading a full frame worth of pixels, they start over again.

I know that there may be -- at least in the past, historically, there have been some exceptions to that when you're dealing with interlaced frames. But, in general, I -- I believe that's -- that's the case.

Q. And then the next limitation is the display device has to have a data driving circuit?

A. Yes.

Q. And it's the data driving circuit that applies the reset voltage?

A. Yes.

Q. And it also supplies the designating current; right?

A. Yes.

Q. And the designating current, according to the claim, is supplied in a second part of the selection period; is that right?

A. Yes.

54

Q. And the claim splits up the selection period into two parts. The first part is when the reset voltage is applied, and the second part is when the designating current is applied; right?

A. Yes.

Q. And then the next limitation of the claim is a plurality of pixel circuits; right?

A. Yes.

Q. And the plurality of pixel circuits are connected to the selection scan lines?

A. The -- it says, "A plurality of pixel circuits which are connected to said plurality of scan line -- of selection scan lines," yes.

Q. And the plurality of pixel circuits are also connected to the current lines; correct?

A. Again, it says, "A plurality of pixel circuits which are," dot, dot, dot, "connected to," dot, dot, dot, and "said plurality of connected lines."

Q. And so the -- the pixel circuit and the selection scan line, those are two different elements of the claim; right?

A. The plurality of scan lines and the plurality of pixel circuits are two different limitations in -- in this claim.

55

Q. And they're two different elements of the display device that are -- that is being claimed; right?

A. Let's see. One second.

THE WITNESS: Sorry. Could you read back the question.

Q. Let me re-ask it. Maybe I can break it down a little bit more.

So the first limitation we discussed as being part of a display device was a plurality of selection scan lines; right?

A. Yes.

Q. And in the fifth limitation that we've been looking at, you have to have a plurality of pixel circuits; right?

A. Yes.

Q. And the plurality of pixel circuits are connected to the plurality of selection scans; right?

A. Yes, that's what the claim says.

Q. And so the plurality of pixel circuits are distinct from the plurality of selection scan lines; right?

MR. TSUEI: Objection, form.

A. That was -- well, I can't find it right

56

now, but somewhere in my report I express that -- the opinion that pixel circuits comprise the scan lines, and I give support for that. I think that may be the one area where the citation was missing, but I can't find it right now.

So with -- with that caveat, I would say that, you know, the -- the pixel circuits in the scan lines are -- are separate pieces, but in some context, in one of the patents, there's a claim that the one comprises the other.

Q. But that's not the particular claim we're looking at here; right?

A. I don't believe so.

Q. And if the scan line has to connect to the pixel circuit, it couldn't also then be inside the pixel circuit; right?

MR. TSUEI: Objection, form.

A. Just a second.

Well, I can't find it right now in the report. There was some ambiguity in the written specification about whether one was included in the other. But the way that the -- you know, the way that this claim was structured, they are separate limitations.

Q. And, similarly, the current lines are

57

separate limitations from the plurality of pixel circuits; right?
A. Yes.
Q. And so the current lines are not formed within the pixel circuits; right?
MR. TSUEI: Objection, form.
A. I believe -- wait a second.
I have -- have opined on current lines.
Let's go and look at that.
Yeah, I -- I -- again, my -- I believe the current lines is a plain and ordinary meaning that is, you know, lines through which a current flows. So I don't -- I don't see where there's any particular limitation as to where, you know, a current line has to be placed in relation to the pixel.
Q. According to the claim, though, as we discussed, the current line has to be connected to the pixel; right?
A. The current line has to be connected to the pixel, yes.
Q. And it's a separate limitation of the claim from the pixel circuit; right?
A. Well, the limitation is a plurality of pixel circuits which are connected to said

58

plurality of selection scan lines and said plurality of current lines.
So the plurality -- the plurality of pixel circuits has to be connected to the plurality of current lines.
Q. And the plurality of current lines was set out separately in the second limitation of the claim; right?
A. It was.
Q. Okay. And so the claim does specify that the pixel circuits are connected to the current lines and that the current lines are not part of the pixel circuit; right?
A. Again, that's not clear to me. It's -- there are current lines. There are pixel circuits. And they're -- the current lines are connected to pixel circuits. Whether the generic term "current line" is -- you know, is limited to lines outside the pixel circuit, I don't know. Certainly, you know, those -- those current lines are connected to the pixel circuits.
Q. So you don't -- your opinion is that the fact that it says the current lines are connected to the pixel circuits doesn't tell you whether or not the current lines are a separate element from

59

the pixel circuits?
A. It says, "The plurality of pixel circuits which are connected to said plurality of current lines."
Q. And so I just want to make sure I understand your opinions here.
Your opinion is that the plurality of pixel circuits can include current lines within them that are then connected to the pixel circuits themselves?
MR. TSUEI: Objection, form.
A. I think the general term "current line" can apply to different lines at different places that -- that conduct current. And I'm looking at this from a claim construction point of view.
There could be current lines that are not part of the pixel circuit, and there could be current lines that are part of the pixel circuit.
Q. Let me ask this a different way.
The claim tells you what signals are applied to the current lines; right?
A. Yes.
Q. And -- and those are the ones we talked about earlier, the reset voltage and the designating current; right?

60

A. Yes.
Q. So the claim is not talking about any current lines, it's talking about particular lines that carry those two signals; right?
A. Yes.
Q. And those particular lines would be connected to the pixel circuits; they would not be part of the pixel circuits; right?
MR. TSUEI: Objection, form.
A. Well, let's -- let's look -- okay.
Let's look at Fig. 7 in the '042.
We have a vertical line on the left-hand side with an arrow on it that says IDAT, and that's -- that's indicating current flowing through line YJ. And that's certainly -- that's certainly a designating current flowing through line YJ, which is a -- which is a -- what are we calling it? -- current line.
But, also, the line between going off the right side -- well, actually, both. But let's look at the line going off the right side of transistor 21, going to the node between the OLED and the capacitor on the right-hand edge of that particular pixel. That line is also a line carrying the designating current and would be, you

61

know, carrying the -- yeah, carrying the designating current.

So that particular line, I believe, is inside the pixel circuit, which is called DIJ. And it is a -- it's a line that's conducting current. And it's conducting the designating current. And it is inside the pixel.

So, you know, in the broadest sense of -- of constructing current lines, I believe that -- that particular element, as well as the element going from transistor 21 to the column drive -- column line YI, those two could also be considered current lines.

Q. So you think those two could also be considered current lines under the broadest possible construction of the claim?

A. Yes.

Q. To be clear, the lines that you pointed to, nowhere in the patent, in the '042 patent, does it label those lines as current lines; right?

A. I do not believe so.

Q. And, in fact, the vertical line you talked about before as YJ, that is what the patent calls the current line; right?

A. Well, it uses the term "current line,"

62

and, you know, that is -- that is a line connected to the -- to the column drivers, the data drivers, and it does -- it does go vertically through the matrix. And it does -- and it does call that line a -- a current line.

Q. So to be clear, the '042 patent consistently calls the line labeled as YJ the current line; right?

A. I would have to go back and check every instance, but I believe that's the case.

MR. FRISCH: Why don't we take a break here.

THE WITNESS: Okay. Ten minutes?

MR. FRISCH: Sure. Ten minutes would be great.

THE WITNESS: Okay.

MR. FRISCH: Let's wait for them to take us off the record.

THE VIDEOGRAPHER: Off record, 2:35.

(Recess in proceedings.)

THE VIDEOGRAPHER: On record, 2:54.

BY MR. FRISCH:

Q. Mr. Flasck, before we took the break, we were talking about Fig. 7 of the '042 patent. Do you recall?

63

A. Yes.

Q. We were also talking about the construction of the term "current lines"?

A. Yes.

Q. And if you look at your corrected declaration on page 20, Solas's proposed construction for that term is "plain and ordinary meaning, i.e., lines through which a current flows."

Right?

A. Yes.

Q. Are there any lines shown in Fig. 7 that would not meet Solas's proposed construction for the term "current lines"?

A. Well, there probably are.

For instance, the -- the line going from the gate of transistor 21 to the horizontal line XI, that's a selection line. There would -- there would be no substantial current flowing through that line.

Q. When you say "no substantial current," would there be any current?

A. Well, just about any time there's a voltage across something, there's some current. It may be minuscule, depending on the actual

64

configuration, but the current flowing through that line would be negligible.

Q. So you don't believe that Solas's construction intends to include lines that have negligible current then; right?

MR. TSUEI: Objection to form.

A. I believe that the -- my opinion is that the, you know, lines through which a current flows, that current has to be -- has to be of such a magnitude that it -- that it performs some function or that it affects, you know, the operation of the circuit.

If it's a negligible current that doesn't perform a function or affect the operation of the circuit, then I would -- I would not consider that a -- that line a -- if it never has a non-negligible current flowing through it, I would not consider it a -- a current line.

Q. If we go back to claim 1 of the '042 patent, the selection scan lines are used to select the plurality of pixels such that signals can be written to them; right?

A. Yes.

Q. And so the selection scan lines would be connected to the gates of the transistors to turn

65

them on or off; right?
A. Yes. In these configurations, yes, I believe that's true.
Q. I want to move on now to the 6 --
A. Let me say: Specifically, the -- the one that I pointed out, I believe it was, what, TR -- let me go back to it.
Yeah, the -- the gate line connecting to -- to transistor 21, you know, there -- there may be other lines connected to other gates that -- you know, that do -- where there -- you know, any -- any line connected from a node to a gate directly is going to have a negligible current flowing through it.
So I -- I would agree with your statement, yes.
Q. If -- if we can move on now for a moment back to the '615 patent. And we can pull up a copy of that, if that's helpful. That was Exhibit 4.
The '615 patent was trying to solve the same problem that we discussed with respect to the '042 patent; right?
A. One second.
Yes. In my column 30 I say, "The

66

current flowing through such devices is commonly controlled by gate voltage -- gate voltage on a drive transistor. However, the relationship between the gate voltage and the current may change, 'depending on the usage, drive history and the like' and, in particular, the minimum 'threshold voltage' on the gate necessary to permit current flow may shift."
So the -- the problems are similar, yes. Getting a consistent brightness and having to deal with -- you know, with a shift in -- in this case in particular, threshold voltage.
Q. And the '615 patent was again saying that was a problem that was in voltage-controlled systems; right?
A. Yes.
Q. And, in fact, we actually looked at a prior art figure in the '615 patent that showed the voltage-controlled system earlier; right?
A. Yes.
Q. And one of the ways that the '615 patent's alleged invention tries to solve that problem, just like in the '042 patent, is to use a current-controlled circuit; right?
MR. TSUEI: Objection, form.

67

A. In general, it is a current control circuit, yes.
Q. And, in fact, the '615 patent uses a very similar three-transistor, one-capacitor structure to the one that we looked at in the '042 patent; right?
A. It does use a -- in the embodiments described in the '615 patent, it does use a three transistor, one capacitor. I don't believe it's limited to that, but that's what the embodiments show.
Q. And if we look at claim 11 of the '615 patent, that claim is directed to a current-controlled system; right?
A. It's -- yes.
Q. And like the '042 patent, the '615 patent is also directed to an active matrix display?
A. Yes, it has -- it has a plurality of display pixels, and it has -- it has, yeah, nonlinear elements and storage elements, so yes.
Q. Is part of the driving method -- or -- scratch that. Let me start over.
As -- another part of the '615's alleged invention is a use of a particular drive method;

68

right?
A. Yes.
Q. And that particular drive method uses four separate periods?
A. At least in some of the embodiments, I believe, it uses four different periods.
Q. For example, we take a look at Fig. 2, we see those four periods; right?
A. Yes.
Q. And the first period that identifies is a precharge operation time period, Tpre?
A. Yes.
Q. And during that time period, a precharge voltage is applied to each of the data lines in the display; right?
A. I believe in this embodiment, yes.
Q. And the claims also require that, during the precharge period, precharge voltage be applied to each of the data lines?
A. Just a second.
Q. And the particular claim I'm talking about is claim 11, just so we're on the same page.
A. Right. One -- hmm.
Well, one of my copies has disappeared, so let me go back and forth on one copy of the

69

patent.
Yeah, the final limitation in claim 11 says, "With respect to each of the display pixels, the data driver applies a precharge voltage exceeding a threshold voltage [sic]."
Q. So to be clear, claim 11 requires that the data driver apply a precharge voltage to each of the data lines; right?
A. Yes. Well --
Q. If we look --
A. -- data line. Yes, yes.
Q. I'm sorry. I missed -- I missed the end of that answer.
A. It says -- all I was doing was reading it. "Wherein, with respect to each of the display pixels, the data driver applies a precharge voltage exceeding a threshold value of the drive transistor to the data line."
That's what it says.
Q. If we go back to Fig. 2, the second time period is listed as a voltage correction operation time period.
A. Okay.
Q. Sorry. Let me ask that again because I -- I was on the wrong figure.

70

If we go back to Fig. 2, the second period is shown as a threshold correction operation time period, Tth; right?
A. Yes.
Q. And what happens during the threshold correction operation time period, Tth?
A. Basically, the -- in this embodiment the -- the source to drain is -- is shorted out so that the source-to-drain voltage droops to the threshold voltage of the tran- -- of the drive transistor.
You can see that in the -- the second from the bottom timeline.
Q. Thank you.
And then the third period is a writing operation time period, Twr.
A. Yes.
Q. And during the writing operation time period, a gradation sequence signal's applied to each of the data lines; right?
A. A -- I don't know what you mean by "each of the data lines."
During the -- the -- a -- during the right period a -- a -- I believe they refer to it as a gradation. In this -- in this one it's not

71

called a designating current. What's it called?
A gradation current or --
Q. I believe claim 11 uses the term "gradation sequence signal."
A. Yeah. Okay.
Q. And so there are a number of data lines in the display unit; right?
A. Generally, that would be the case, yes.
Q. And each data line will get a gradation sequence signal to provide image data to the pixels that are connected to that data line; right?
A. Generally, that's correct, yes.
Q. And so in the first operation state, each data line will get a precharge voltage, and then in the third operation state each data line will get a particular gradation sequence signal; right?
A. Just a second.
Yes.
Q. And both of those signals will be supplied by the same data line so that you can first put a precharge voltage on pixels that are connected to the data line and then you can put image data on the pixel circuits that are

72

connected to the data line; right?
A. Okay.
Yes. Data lines are lines through which data is supplied, and that would -- that would apply to -- to this situation, yes.
Q. And the data that's applied, according to claim 11, is both the precharge voltage and the image data; right?
A. Again, the -- my opinion regarding the construction of data lines is plain and ordinary meaning, with an alternative of lines to which the data driver supplies gradation sequence signals and applies a precharge voltage.
Q. And so -- actually, let me ask you a quick question.
Where are you reading that from?
That's from your corrected declaration?
A. Yes. Page 30. In the box.
Q. Thank you.
Okay. And so it's -- it's "Plain and ordinary meaning, i.e., lines through which data supplied," whereas you said, "Alternatively, 'lines to which the data driver supplies gradation sequence signals and applies a precharge voltage.'"

73

Right?
A. Yes.
Q. And what's meant by the "alternative construction" is that each of the data lines will carry both a gradation sequence signal and a precharge voltage; right?
A. This is a claim construction. I'm constructing data lines -- I'm construing data lines to be what we just read. Whether each data line or each line must provide those circuits -- or provide the -- each line must receive or transmit those signals is a separate question that has to do with claim construction.
Okay. One of the limitations is a data driver which supplies the gradation sequence signals to the data lines.
My interpretation of that is that the data lines all should receive the -- the gradation sequence signals and the precharge voltage at some point in time.
Q. And, actually, let's -- let's take a look at claim 11 specifically. If we can pull that up, claim 11 of the '615 patent.
Okay. Are you there?
A. Yes.

74

Q. Okay. Thank you.
And claim 11, again, is directed to a display unit; right?
A. Yes.
Q. And as we talked about in the '042 patent, a display unit is the entire display, including the -- the matrix of pixels?
A. Yes.
It doesn't specify matrix of pixels in the claim as such, but, yes, that would be a reasonable expectation, yeah.
Q. And if we go to the first limitation, the display unit has to comprise a plurality of display pixels; right?
A. Yes.
Q. And each of those includes a light emission element and a light emission drive circuit?
A. Yes.
Q. A light emission element could be, for instance, an -- an OLED; right?
A. Yes.
I don't believe it's limited to OLEDs in the patent. In fact, it mentions LEDs, and -- and it at least implies inorganic electroluminescent

75

devices, but certainly an OLED would be a type of -- a type of light emission element.
Q. And the light emission drive circuit, according to claim 11, also has an electric charge accumulating section for accumulating electric charges?
A. Yes.
It says, "A light emission drive circuit having an electric charge accumulation section for accumulating electric charges."
Q. Okay. And -- and "an electric charge accumulating section for accumulating electric charges," that is, for instance, a storage element?
A. Could be.
Q. A capacitor would be an example of that?
A. Yeah. Capacitor's a -- is a possible candidate for that OLED.
Q. And then --
A. I would say -- I would add, though, that if you look at claim 2, just -- I looked at that just to kind of inform myself. It says -- one of the limitations on line 10 -- column 47, line 10, is an electric accumulation section includes a capacitance -- capacitance element.

76

And even if a capacitor's used, it doesn't necessarily -- there -- it -- it includes it, so there may be other elements besides your capacitor even in that particular embodiment.
Q. And then the claim goes on to require a number of different sections; right?
A. Yes.
Q. And one of those is a light emission control section?
A. Yes.
Q. And another one of those is a writing control section?
If it helps, I'm looking at around line 34 to 35 in column 48.
A. Yes. Yeah. That's a writing control section. Thank you.
Q. And if you go down a few lines, it also requires a voltage control section; right?
A. Yes.
Q. And if we take a look first at that light emission control section, it says, "A light emission control section for generating a light emission drive current having a predetermined current value in accordance with the electric charges accumulated in the electric charge

77

accumulating section and supplying that light emission drive current to the light emission element."

Did I read that correctly?

A. Yes.

Q. And can you explain in less technical terms what that means?

A. Okay. Again, if -- again, in forming my opinion, I go back -- I looked again at claim 2. And at -- starting at about line 12, it says, "A light emission control section including a drive transistor, in which a first and second side of the current path," et cetera, et cetera.

So, again, the light emission control section includes a drive transistor. It may include other things, but I would expect, you know, that it would include a drive transistor.

So the drive transistor being the heart of it is the element that -- that provides the current during the emission portion of the -- of the frame. It supplies that drive current to the OLED device itself. And the magnitude of that current is determined by the charge accumulated in the electric accumulation section, which includes a capacitor.

78

Q. And based on your analysis of claim 2 in -- in light of claim 11, is it your opinion that with respect to claim 11, the write control section should at least include a selection transistor?

A. Claim 11 doesn't require a transistor for the -- I'm sorry. Ask the question again.

Q. Well, I'm -- I'm wondering, based on the analysis you provided, does the writing control section of claim 11 require at least a selection transistor?

A. I don't believe claim 11 requires a selection transistor for the writing control section.

It may be possible to implement a writing control section based on something other than a transistor. Yeah. Again, maybe a diode configuration or something else. But certainly in the -- in the embodiments, it shows the writing control section includes a selection transistor, so that's certainly one way of doing it.

Q. In fact, in every embodiment, the writing control section is shown as a single selection transistor; right?

A. I would say the writing control section

79

includes a single selection transistor in -- but those are embodiments, not in -- I wouldn't want to import that as a limitation into the claim.

Q. Okay. My -- my question is slightly different, though.

In -- in all of the embodiments of the specification, the writing -- excuse me. Make sure I get my terminology here right. Let me start over.

So in -- in all of the embodiments of the claim or of the specification, the writing control section is shown as a single selection transistor; right?

MR. TSUEI: Objection, form.

A. I think in all of the embodiments the writing control section includes the transistor T12 plus the associated connections to it.

Q. And by "associated connections," you just mean the wires that are coming out of the transistor?

A. In -- in -- in these embodiments, that's true, yes.

Q. And -- and there's no embodiment in the specification of the '615 patent where the writing control section is anything more than a single

80

selection transistor and its connections?

A. Again, I believe in the -- in the preferred embodiment shown, they show the selection transistor and -- and that's all. But, you know, I know there are -- there are configurations where it would be more than a single selection transistor.

Q. But there are no such configurations discussed in the specification of the '615 patent; right?

A. That's correct.

Q. And to be clear, claim 2, if you look at around line 23 of column 47, it says, "A writing control section includes a selection transistor."

Right?

A. Yes.

Q. And that's similar to the language that you pointed to in row 12 of column 47 that says, "A light emission control section includes a drive transistor."

Right?

A. Oh, I'm sorry. I thought you were pointing to the same one.

But I -- I was -- I was pointing to -- let's see. Column 47, line 23, "The writing

81

control section includes a selection transistor." So it's -- it's envisioning an embodiment similar to the -- to the ones that, you know -- that are shown in the specification. And it says it includes a selection transistor. It doesn't preclude anything else. But it says it includes at least a selection transistor.

Q. And earlier when we were talking about the light emission control section, you pointed to -- to row 12 of column 47, where it says, "A light emission control section includes a drive transistor."

Right?

A. Yes.

Q. And you pointed to that as evidence for the fact that the light emission control section in claim 11 should include a drive transistor; right?

A. It -- in claim 11, it could -- based on the section of claim 11 that we were looking at, it could include a drive transistor. But later on in claim 11, line -- line 57-ish, it specifies that the -- "a precharge voltage exceeding a threshold voltage [sic] of the drive transistor."

So claim 11, I believe, because of that,

82

does require a drive transistor. It may include other things other than the drive transistor, but it does require a drive transistor in the light emission control section.

Q. If we look back at claim 11 and move on to the second limitation, claim 11 requires that the display unit comprise selection lines; right?

A. Yes.

Q. And the selection lines control -- well, let me -- let me start again.

The -- the entire limitation says that "selection lines in which writing control signals for controlling the operation state of the writing control sections of the display pixels are applied."

Right?

A. Yes.

Q. And so the claim requires that specific writing control signals be supplied from the selection line to the pixel circuit; right?

A. Yes.

Q. And then the next limitation of the claim is that the display unit must comprise hold lines; right?

A. Yes.

83

Q. And the hold lines are separate and apart from the selection lines that we just discussed; right?

MR. TSUEI: Objection, form.

A. Yeah.

Q. And -- I'm sorry. Can you just repeat your answer. I'm not sure if I heard it.

A. Sure. Just a second.

Well, those seem to be two separate elements. So selection lines and hold lines.

Q. And the limitation says that it's "hold lines in which voltage control signals for controlling the operation state of the voltage control sections of the display pixels are applied."

Right?

A. That's what it says.

Q. Why are they called hold lines?

A. Because the -- in these -- in the embo- -- certainly in the embodiments that -- that are in the patent of when -- when the -- let me call it a -- a hold transistor is activated, the charge is trapped on the -- across the storage capacitor or the charge is trapped on the gate of the drive transistor.

84

Again, if you'll look at claim 2, line 29, it says, "The voltage control section includes a hold transistor, in which one end," et cetera, et cetera.

So, you know, it -- in the -- in the embodiments, the voltage control section includes a hold transistor. It could include other things. And in claim 11, it does not specify that the voltage control section requires a transistor.

Again, in principle, I could imagine that it could be implemented with some other component, some arrangement of diodes and whatnot.

But -- but certainly in the embodiments shown in the patent, the -- the voltage control section includes a hold transistor.

Q. And if we look back up earlier in the claim, where it talks about that voltage control section, it says that it's a voltage control section for controlling a drive voltage for making the light emission control section perform the operation.

Do you see that?

A. What -- what line did you start on there?

Q. So I'm starting on line 37 of column 48.

85

A. Yeah.
Q. And I was starting with the words "and a voltage control section..."
Do you see that?
A. I -- yes, I see it.
Okay. Let me read it again.
Yes. I see it.
Q. And -- okay. And it says -- just to be clear, it says, "A voltage control section for controlling a drive voltage for making the light emission control section perform the operation."
Right?
A. Yes.
Q. Does the voltage control section connote any specific structure to a person of ordinary skill in the art?
MR. TSUEI: Objection as to form.
A. It certainly -- I mean, the one that obviously comes to mind is a hold transistor as shown in the -- as shown in the embodiments of the patent.
Are there other possibilities? I believe there are, but I'm -- I am sitting in the middle of a deposition. I'm not going to start inventing circuits or subcircuits, but there

86

probably are other circuits that use other nonlinear devices that could accomplish that. But certainly a -- a hold transistor is -- is one obvious choice.
Q. But you don't think it's the only one required for a voltage control section; right?
A. I believe that -- I believe that you can come up with another -- another circuit that does not use a hold transistor but that would perform the same function.
But, again, sitting in the middle of a deposition, I -- I'm hesitant to -- you know, to try to do a circuit design.
And, again, even if a hold transistor is used, there can be other elements in the voltage control section besides a hold transistor or besides the other nonlinear devices that may be -- may be used.
Q. So is it your opinion that for claim 11 the voltage control section is defined by its function?
MR. TSUEI: Objection, form.
A. I don't think it's defined by a function. The function is -- well, let me see where -- where are we again?

87

Q. We're at column 48, line 37.
A. Yeah.
Yeah, it -- it -- it states the purpose of the -- of the section. It -- it doesn't go into any particular detailed structure of it. But one detailed structure that the -- you know, that is explicitly put forward in the patent is the -- is the selection transistor and the associated stuff that may be around the selection transistor.
Q. All right.
A. Sir, I'm sorry. You were talking about the voltage control section.
Q. Yes.
A. Yeah. Okay. Yeah.
I'm sorry, when I said -- not the selection transistor, the hold transistor, yeah.
Q. But similarly for the writing control section, you don't think the writing control section is limited to a selection transistor; right?
A. That's correct.
Q. And -- and, in your view, writing control section doesn't connote any particular structure to a person of ordinary skill in the art?

88

A. Again, to a person of ordinary skill in the art, you know, a -- the use of a selection transistor would be the first thing that sprung to mind. I'm just saying that it's -- it's not clear that another circuit that did not use a selection transistor could not be implemented, based on claim 11.
Q. Okay. And the -- the next limitation that we haven't discussed yet in claim 11 is data lines. Do you see that?
A. Yes.
Q. And so the display unit has to comprise data lines to which the gradation sequence signal are supplied; right?
A. Yes.
Q. And that's identified as a separate limitation from the plurality of display pixels that are identified in limitation 1; right?
A. Yes.
Q. And then the next limitation is "a selection driver which applies the writing control signals in the selection lines."
Right?
A. Yes.
Q. And then if we keep going, the next

89

limitation is "a hold driver which applies the voltage control signals in the hold lines"?
A. Yes.
Q. And then the next limitation is "a data driver which supplies the gradation sequence signals to the data lines"?
A. Yes.
Q. And what, in your understanding, is the difference between those three drivers, the selection driver, the hold driver, and the data driver?
A. Okay.
The -- in principle, the data driver supplies data, the gradation sequence signals. The hold driver is a signal which traps the voltage on the -- on the drive transistor gate. And the selection driver is the driver which allows a -- the write control -- well, it's the -- it's the selection driver which activates the -- the write control -- selection driver applies the write control signals to the selection lines. So it's -- it's a driver that activates the selection lines.
In the embodiments it's -- let's see. It's shown somewhere here. I've seen it before.

90

Let's see if I can -- maybe it's -- maybe it's not in this one.
But if you look at Fig. 21, the -- you know, the data driver is -- is the -- is represented by the SDR, which provides the -- provides the voltages to the data line. The -- not shown is the select line driver, which supplies the -- the signal to the Ssel horizontal line. And the hold driver is a driver that's not shown that supplies the signal to the Shld line. So you have those three different drivers.
Q. Thank you. That was helpful.
I want to move now out of the patent itself and back to your corrected declaration for a moment.
And if we could go to page 13 of Exhibit 2.
A. Okay.
Q. And this is the beginning of your section on disputed terms for the '042 patent; right?
A. For the '615 patent?
Q. For the '042 patent.
It's -- on page 13, you have section VII, and that's the Disputed Terms for '042

91

Patent; right?
A. Oh. I'm sorry. Yes.
Q. Okay. And the first term that you discuss is the term "the selection period."
Right?
A. Yes.
Q. And you note that that comes from '042 patent, claim 1?
A. Yep. Let me pull up the '042 again.
Yes.
Q. And one of the items that you take issue with, with respect to defendant's proposed construction, is its use of the term "interval"; right?
A. Yes.
Q. And, in your opinion, a period is different than an interval?
A. Yes.
Q. And actually in paragraph 42, you say, "Defendant's proposed use of 'interval' is inappropriate, since a interval simply specifies a difference between two times (e.g., T1 to T2) without specifying the specific values of T1 and T2, or the relationship between T1 and T2 and the rest of the signal and voltage times."

92

Right?
A. Yes.
Q. And you note in that paragraph that, in your opinion, the intrinsic record, including Fig. 4 and its related description, confirms that the selection period is a period and not an interval; right?
A. I believe it's in there somewhere.
Q. I'm looking at the first line of paragraph 42, if that helps.
A. Yeah. Yes.
For example, the specification explains, referring to claim 4, that the period in which the selection driver -- the selection scan driver, 5, selects the selection role, et cetera, et cetera. Yes.
Q. But just to clarify, you're not saying that the term is limited to a particular embodiment of the patent; right?
A. The term "selection period" is -- is -- is not limited to a particular embodiment.
Q. You're applying what a person of ordinary skill in the art would commonly understand the term "period" to mean; right?
A. Yes.

93

Q. And, in your opinion, it would be commonly understood to mean something different than "interval"; right?
A. Yes.
Q. How would the term "duration" relate to the term "interval"?
A. "Duration" has the same flavor as "interval;" that is, the difference between two times rather than a -- rather than a definite chunk of time with a definite starting point and ending point.
Q. Are there differences, in your opinion, between the term "duration" and "interval"?
MR. TSUEI: Objection as to form.
A. Just a second.
Yeah, I think "duration" and "interval" have very close to the same meaning. It's -- it's T1 minus T2 rather than a block of time from T1 to T2.
Q. And you don't cite any dictionary definitions in support of your opinions for this particular term; right?
A. I believe that's correct. I don't -- I don't -- I don't provide any dictionary definitions.

94

Q. Did you look at any dictionary definitions when you were providing your opinion with respect to this particular term?
A. No.
I relied on my -- my general knowledge and experience to understand that a period is a definite block of time between two -- two points in time, like the Jurassic period; whereas, an interval or duration is -- is a -- is a difference between two -- it's T1 minus T2, not a block of time from T1 to T2.
So I was relying on my general knowledge rather than any particular dictionary definition.
Q. And you understand that the parties have provided -- produced dictionaries to one another in this matter; right?
A. Yes.
Q. And did you consider those dictionaries when you put together your corrected declaration?
A. I don't recall.
This -- this opinion was -- was essentially formed on my understanding of what a period was rather than an interval.
MR. FRISCH: And if we can pull up what was previously marked as tab 7 and mark it as Exhibit 6.
(Exhibit 6 was marked for identification and is attached to the transcript.)
A. We have to use the small screen here. I don't think I preloaded the definitions.
Q. Okay. Do you have Exhibit 6 now in front of you?
A. Is that what's on the screen, on the -- on the small screen here, on Zoom?
Q. Yes. Yes.
A. I see -- yes, I see "along" on Zoom.
Q. Okay. And do you understand that this is a set of dictionary definitions from Dictionary.com that were produced by Solas in this matter?
A. That looks familiar. I -- I'll take your word for it.
Q. Okay. And if we go to the second page, do you see that it defines the term "period"?
A. Yes.
Q. And if we look at the definition for "period," the first definition is "a rather large interval of time that is meaningful in the life of a person, in history, et cetera, because of its particular characteristics."

95

96

Right?
A. Yes.
Q. So this definition of "period" defines it using the term "interval."
Correct?
A. Yes.
Q. And the definition does not include anything specifying the values of T1 and T2, does it?
MR. TSUEI: Objection as to form.
A. I guess my understanding is more along the -- the second definition, any specified division or portion of time.
But you're right, it's -- it simply says a rather large interval of time that is meaningful in the life of a person.
MR. FRISCH: And can we pull up what was previously marked as tab 8 and mark it as Exhibit 7.
(Exhibit 7 was marked for identification and is attached to the transcript.)
Q. And do you recognize Exhibit 7 as a copy of the -- or select portions out of the Concise Oxford English Dictionary that was produced by Solas in this matter?

97

A. Yes.
Q. If you go to page 3 of Exhibit 7, it has the definition of the term "period" on it; correct?
MR. FRISCH: And perhaps we can zoom in.
A. Oh, yeah.
I'm sorry. The -- the -- the collection of faces is -- was covering it. One second. Let me move the view thing there.
Yes. Okay.
Q. And if you look at the fifth definition of "period," which is supplying -- it says -- for physics, it's defined the term as "the interval of time between successive occurrences of the same state in an oscillatory or cyclic phenomenon."
Right?
A. Yes.
Q. So it has defined the term "period," at least as to physics, to also use -- as also using the word "interval."
Right?
A. Yes.
Q. In fact, if we look at the sixth definition, that definition of "period" is being supplied in terms of mathematics, and it says,

98

"The interval between successive equal values of a periodic function."
Right?
A. Yes.
Q. And so, again, it has provided another definition of the term "period" where it defines the term using the word "interval."
Right?
A. Yes.
MR. FRISCH: And if we can pull up what was previously marked as tab 9. If we can make that Exhibit 8.
(Exhibit 8 was marked for identification and is attached to the transcript.)
Q. Do you recognize Exhibit 8 as a copy of select portions from the Microsoft Encarta College Dictionary that was produced in this matter by defendants?
A. Yes.
Q. And if we go down to page 5 of this document, do you see that it has a definition for the term "period"?
A. Yes.
Q. And if we look at the very first definition, it says that it is "an interval of

99

time."
Right?
A. Yes.
Q. And, in fact, if you look at the next definition, it's an interval of time that is identified by what happens or exists during it; right?
A. That's what it says.
Q. And if we go down to the ninth definition, it is "the interval between the points at which the values of a periodic function are equal."
Right?
A. Yes.
Q. So this dictionary has at least three definitions for the word "period" that also use the term "interval."
Right?
A. Yes, it does.
Q. So does looking at these various dictionaries impact your opinion at all as to whether the use of the term "interval" is inappropriate when defining the term "period"?
A. I would say in the context of the patent that "period" means the block of time between two

100

specific time events, T1 and T2. That is not how I understood, just personally, the word "interval," that the word "interval" would mean that.
I interpreted the word "interval" as meaning T1 minus T2, independent of where T1 and T2 were. So I can certainly see where if one were to ascribe to the word "interval" a definite block of time between T1 and T2, that it would be appropriate.
Q. And if we look at Samsung's proposed construction that you've listed on page 13, Samsung's proposed construction is, "The time interval during which the ON voltage is applied to one selection scan line."
Right?
A. I'm sorry. Where are you now?
Q. Page 13 of your corrected declaration.
A. Oh. And what were you reading?
Q. So we're on page 13 of your corrected declaration. I was looking at the box that you've identified as Samsung's proposed construction.
A. Yes. Yes.
Q. And do you see there that it's "The time interval during which the ON voltage is applied to

101

one selection scan line"?
A. Yes.
Q. Doesn't defendant's construction then identify T1 as when the ON voltage is applied and T2 is when the ON voltage is no longer applied?
MR. TSUEI: Objection as to form.
A. If you -- if you take the definition of "interval" as being the block of time between two definite time points, T1 and T2, then my understanding of -- of what -- the difference between period and interval was incorrect. And, you know, we could -- you could say that the -- that the selection period was the interval during which the -- a plurality of pixel circuits is selected.
So I'm saying that based on the -- based on the dictionary definitions and based on the fact that you seem to be implying that "interval" can mean the specific block of time between T1 and T2, then I would -- then I would consider "interval" to perhaps not be inappropriate.
Q. And if we look at Solas's proposed construction on page 13, it's "time period during which a plurality of pixel circuits is selected."
Right?

102

A. Correct.
Q. And, in fact, it doesn't actually provide a definition for "period." It just uses the term "period" again in its construction; right?
A. It uses the term "period."
Q. In your opinion, does Solas's proposed construction identify specific values of T1 and T2 and a relationship between them?
A. Yes. That was my understanding of what "period" meant.
Q. So you think that's baked into the term "period," which is in Solas's proposed construction?
A. Yes.
In the context of, you know, the Jurassic period was from this point in time to that point in time. The Cretaceous period was from this point in time to that period in time. It wasn't a -- it wasn't a length of time. It was the block of time between two particular -- two particular times. That was -- that was the perspective with which I was coming at "period."
Q. If we move on to paragraph 43 and paragraph 44 of your corrected declaration --

103

these are on pages 14 and 15 -- can you explain the opinion that you're providing in those two paragraphs?
A. Okay. Give me a second.
Okay. By including -- in Samsung's proposed construction, by including the term "ON voltage" and being applied to one selection line, I see there are two problems with that.
First of all, the -- the -- the patent defines "ON voltage" as being a high voltage. And that would be appropriate if, as in the preferred embodiment, NMOS-type devices were used. However, it -- it is contemplated in -- in the '042 that PMOS devices can also be used. And in PMOS devices -- in an implementation using PMOS devices, then the -- then the voltage for applying to selection lines is not a high voltage, an ON voltage as specified in -- in the -- in the specification part that -- that Samsung is using, but the selection voltage would be a low voltage if PMOS devices were being used.
So I believe the -- the term "ON voltage" is not applicable to the broadest interpretation of the claims, which would include PMOS-type transistors.

104

The -- the second problem that I see is that the voltages apply to one selection scan line. The -- if we go back to the -- if we go back to claim 1, the -- one, two -- third limitation is, "A selection scan driver which sequentially selects said plurality of selection scan lines in each scan period."
So it need not be selecting one scan line in a period. It could be selecting more than one scan line in a period. So I believe that's -- that's another limitation that was imported that -- inappropriately.
Q. I want to talk about the first one you identified, where you were talking about the ON voltage.
A. Yeah.
Q. Okay?
A. Uh-huh.
Q. Is it your opinion that PMOS transistors don't have an ON voltage?
MR. TSUEI: Objection, form.
A. There is a voltage at which the transistor would turn on, but it's not the ON voltage that -- that is described in the preferred embodiments of the specification and used in

105

Samsung's proposed construction.
Q. As a person of ordinary skill in the art would normally understood -- stand the term "ON voltage," does a PMOS transistor have an ON voltage?
A. Yes, but it's not the voltage that's described in the -- in the preferred embodiment.
Q. Where in Samsung's proposed construction does it say that it's limiting the ON voltage to what you've identified in the preferred embodiment?
A. Well, it uses the term "ON voltage." And ON voltage is -- is specifically defined in the specification as being a high voltage.
Q. So your opinion is that ON voltage is explicitly defined in the specification?
A. Yes.
If you look at paragraph -- my paragraph 44, it says -- starting at line -- one, two, three, four, five -- end of line five, paragraph 44, "The 'ON voltage' of the '042 patent -- patent's preferred embodiment is described by the '042 patent as: 'a high-level (ON level) ON voltage VON (much higher than the reference voltage VSS) as a selection signal...'" and that

106

is -- that would be inappropriate to use for PMOS.
Q. What is it about what you just read that you think defines ON level as being solely for NMOS?
MR. TSUEI: Objection as to form.
A. Okay. It says the "high level ON level ON voltage VON" parens, and it's in the parens, "(much higher than the reference voltage VSS.)"
VSS is the low voltage in the -- in the system. So it's saying that VON is higher than the lowest voltage in the system. And that would not then work for PMOS.
Q. So --
A. Because PMOS --
Q. My apologies. I didn't mean to cut you off.
A. Because a PMOS transistor becomes conductive when the gate voltage is low, not high, when it is close to VSS.
Q. So, in your opinion, by including ON level in parenthesis, the patent is explicitly defining ON level as high level?
A. Yes.
Q. If you can pull open a copy of the '615 patent, which is Exhibit 4. And let's go to

107

column 17.
Let me know when you're there.
A. I'm there.
Q. Do you see in column 17, line 9, where it says, "a selection transistor," and then in parenthesis, it says "(writing control means)"?
A. Yes.
Q. So is the '615 patent explicitly defining selection transistor as write control means?
A. I don't think the -- the claim's limited to that. And I guess my answer would be no.
Q. Well, I'm not asking about the particular claims. I'm just asking about the specification.
So your opinion is that in column 17, when it says "a selection transistor" and then puts in parenthesis, "(writing control means)," that it's not defining the write control means as a selection transistor?
A. Yeah, I don't think it's acting as -- I don't think the inventors were acting as their own lexicographers with that.
I think a POSITA would understand what was meant by "a selection transistor (writing

108

control means)."
Q. And if you go down to line 13, when it says, "a gate terminal," and then in parenthesis, it says "(a control terminal)," you don't think that a person of ordinary skill in the art would understand them to be defining a control terminal as a gate terminal?
A. No.
Q. If we go down to line 17, where it says, "holding transistor" and in parens "(voltage control means)," you don't think it's defining "voltage control means" as holding transistor?
A. No. I think it's -- I don't think they're acting as their own lexicographer, if that's what you're asking.
Q. And if we go down to line 23, where it says "drive transistor," and then in parentheses it says "(light emission control means)," you don't think that they're acting as their own lexicographer to define light emission control means as a drive transistor?
A. Give me a second.
I'm sorry. I -- where were we? I --
Q. Column 17 of the '615 patent, line 23.
A. Okay.

109

Yeah, I don't believe that that, in itself, means that they're acting as their lexicographer.

Q. But if we go back to your declaration, your corrected declaration, Exhibit 2, if we go back to paragraphs 43 and 44, in the '042 patent, you think they are acting as their own lexicographer when they say "a high level" and then in parentheses "(ON level)"?

MR. TSUEI: Objection, misstates testimony, form.

A. That's -- it's -- you know, it's pretty clear that they're talking about a -- you know, a high voltage. And a POSITA would understand that, you know, that's -- that's referring to, you know, NMOS transistors.

Q. In your opinion, a person of ordinary skill in the art would understand that to be a definition they're applying to the entire patent and not just for that preferred embodiment?

A. That preferred embodiment uses VON, and it defines VON or ON -- ON voltage in the specification, and that -- that terminology was -- you know, was imported into Samsung's proposed construction. So I think, in that context,

110

it's -- it's inappropriate that it -- it would -- it would read out the PMOS and a PMOS implementation.

Q. To be clear, though, Samsung's proposed construction does not say the time interval during which a high-level voltage is applied; right?

A. Well, according to the patent again, it -- it equates -- Samsung uses the term "ON voltage" and in the patent it says, quote, "a high level (ON-level) ON voltage VON." So it uses the term "ON voltage VON," which is higher than the reference voltage VSS. A -- so I think that's -- I think that's pretty -- pretty clear.

I -- my interpretation, I think, is the same as a POSITA's, would be that they're talking about the ON voltage as being a reference -- being higher than the reference voltage VSS.

Q. Your understanding is that it's inappropriate to limit the claims to a preferred embodiment; right?

A. Yes.

Q. So why is it that you are interpreting Samsung's proposed construction as limited to a particular embodiment?

A. I don't think I am.

111

Q. Well, you're interpreting Samsung's proposed construction when it says the time interval during which the ON voltage is supplied to one selection scan line to be focused only on the embodiment where NMOS transistors are being used; right?

A. I'm sorry. Maybe I didn't understand the question.

They're using the term ON -- ON voltage in their proposed construction. And if we use that def- -- that ON voltage and the definition supplied by the patent, then it reads out a PMOS implementation. I don't know how else to explain it. That's -- that's what a POSITA would understand. That's my understanding.

Q. Just to close the loop on this, so, in your opinion, in this particular instance that you pointed to in paragraph 44, where it has put "ON level" in parentheses, that is expressed lexicography, but the examples we looked at from the '615 patent that use parentheses, those are not expressed lexicography?

Is that right?

MR. TSUEI: Objection as to form.

A. What I'm saying is that I don't believe

112

the claims are limited to NMOS, and they should include PMOS.

I believe Samsung's proposed construction, which uses the term "ON voltage," the "ON voltage" means a high-level voltage, and that would preclude implementation with PMOS.

I don't know how else to explain it to you.

Q. Okay. But -- but outside of the preferred embodiment we've been looking at, a person of ordinary skill in the art would understand the "ON voltage" to apply to PMOS or NMOS; right?

A. They would understand the voltage necessary to turn on the transistor, the term that -- the term that Samsung has used is "ON voltage," which is, within the context of the patent, understood to mean a high voltage, so it would read out the PMOS implementation.

Q. If Samsung's construction instead read "at the time interval during which a voltage is applied to turn on the pixels to one selection scan line," would that fix the issue, in your mind?

MR. TSUEI: Objection, form, incomplete

113

hypothetical.
A. I -- certainly replacing the words "ON voltage" with something else more appropriate would go toward fixing the problems, but the hypothetical you -- you just stated here, I can't -- I can't analyze on the spot. I'd have to -- I'd have to think about it.
Q. If we look at Solas's proposed construction, it says, "Time period during which a plurality of pixel circuits is selected."
What is your understanding of what it means for it to be selected?
A. It means that there is a -- there's more than one pixel circuit that is, let me call it, ready to receive the -- the signals from the data driver, that is, the VPRE or the -- what are they? -- gradation voltage.
THE WITNESS: Is now a good time to take a break?
MR. FRISCH: Yeah. Why don't we take a break for lunch here.
THE WITNESS: Okay.
MR. FRISCH: Let's wait for us to go off the record.
THE VIDEOGRAPHER: Off record, 4:16.

114

(Luncheon Recess.)
THE VIDEOGRAPHER: On record, 4:51.
BY MR. FRISCH:
Q. Welcome back, Mr. Flasck.
A. Hi.
Q. During any of the breaks we've taken today, did you discuss your deposition testimony with anyone?
A. No.
Q. Before the lunch break, do you recall that we were discussing your claims with respect to the term "the selection period" in the '042 patent?
A. Yes.
Q. Okay. I want to continue discussing those opinions.
In particular, if you can go down to paragraph 45 of your corrected declaration, Exhibit 2. And let me know when you're there.
A. I'm there.
Q. And I believe paragraph 45 talks about the second of two issues that you had raised before the break, which is your opinion that a selection period would not be understood to be limited to selecting pixels in a single selection

115

scan line; is that right?
A. Yes.
Q. And your opinion is based in part because you say that where the '042 discusses a selection period which is limited to a single row, it's careful to say so; is that correct?
A. Yes.
Q. And then you actually provide a number of examples of that; right?
A. Yes.
Q. So you do agree that the '042 patent uses the term "selection period" in a number of instances when it's talking about selecting a single line; right?
A. Yes.
Q. Are you aware of any instances in the specification where the '042 patent uses the term "selection period" but it's not referring to a single line?
A. Looking at column 2, line 38.
Q. Okay.
A. It's a -- I want to make sure that the citation is correct.
One second.
Okay. Column 3, line 7, says "a

116

selection scan driver which sequentially selects the plurality of selection scan lines in each selection period."
So it is in the specification, I believe, as well as in the claims, that there are situations where the selection scan driver selects more than one selection scan line in each selection period.
Q. The line you just pointed to, that's in the brief summary of the invention; right?
A. Yes.
Q. And if you look at the brief summary of the invention, in many instances it's -- it has the same language as the claim language; right?
A. I would have to verify that, but it sounds like it's probably true.
Q. If we look at the detailed description of the invention where the embodiments are discussed --
A. Okay.
Q. -- do any of the embodiments use the term "selection period" to discuss selecting more than one row?
A. I don't believe it's used anywhere else.
Q. When you say you don't believe it's used

117

anywhere else, the term "selection period" is used, but you don't believe it's used with respect to those embodiments to discuss selecting more than one scan line; right?

A. I believe the words plurality of -- I believe the words that I quoted in my -- in my declaration are only used at that spot and, I believe, in the claims. And I'd have to check the claims. But it's very similar, if not identical.

Anyway, yes, I -- I don't recall those words being used anywhere else in the -- in the written description.

Q. If we look at Fig. 4 of the '042 patent, Fig. 4 shows a timing diagram that includes a number of different scan lines, X1 through XM; right?

A. Just a second. I apologize. My computer is -- okay. Fig. 4.

Q. Yes.

In Fig. 4 it shows a timing diagram that includes a number of different scan lines, X1 through XM; right?

A. Yes.

Q. And, for instance, row 1 is voltage of selection scan line X1, and row 3 is voltage of

118

selection scan line X2; right?

A. Yes.

Q. And at the top of the figure, there are a number of labels, the uppermost of which is TSC, and then following -- going down in vertical order, TSE, and then TNSE and then TR; right?

A. Yes.

Q. And TSE, the label that says TSE, that is a label that's being used for the selection period; right?

A. Yes.

Q. And the first label at the top of the page that says TSE, that's meant to show the selection period of selection scan line X1; right?

A. Yes.

Q. And then if you go to the third row, where it says voltage of selection scan line X2, it has its own TSE label; right?

A. Yes.

Q. And that's meant to show the selection period for the scan line X2; right?

A. Yes.

Q. And so at least in this embodiment, in Fig. 4, it separately labels the selection periods for each row; right?

119

A. Yes.

Q. And none of these selection periods that are shown here for scan line X1, X2 or X3 overlap one another; right?

A. That is correct.

Q. In fact, Fig. 4 shows sequentially selecting each row one at a time, starting with X1, then X2, then X3; right?

A. Yes, that's the implication of this, yes.

Q. Now, Solas's proposed construction that you've provided in your corrected -- corrected declaration is time period during which a plurality of pixel circuits is selected.

And I want to still focus on Fig. 4. If we were to look at the time period that's first marked TSE for scan line X1, and we were to look at the time period that is TSE for scan line X2, in your opinion, would the sequential selection of those two scan lines be one selection period under Solas's construction?

A. In this particular embodiment with this timing diagram, I would say that in each selection period there were multiple -- there were multiple pixel circuits -- let me get back to my

120

construction here.

Okay. I believe in each of those TSEs shown in Fig. 4, that is a time period during which a plurality of pixel circuits is selected.

I don't think that the -- Solas's construction requires overlapping periods, if that's what you're asking.

Q. So how, under Solas's construction, do you know when a selection period begins and ends?

A. When the -- in this particular configuration, this particular embodiment, it would be when the voltage of the selection scan line -- when it transitions up, that would be the beginning of the period, and when it transitions down, that would be the end of the period.

Q. But I thought, looking at Fig. 4, you were just saying that you could go beyond that in a selection period.

In this instance, scan line X1 could go from VOFF to VON and then back down from VON to VOFF, but that was not the end of the selection period.

A. No.

In this configuration, in this embodiment, I believe that is the -- when the

121

voltage selection of the scan line X1 transitions from high to low, that is the end of the selection period.

Q. Okay. Well, I'm a bit confused, so maybe you can help me work through it.

I think before, you said Solas's construction does not require that the selection lines have overlapping periods to be within a single selection period; right?

A. Yes.

Q. So how do I know, then, when the selection period begins and ends?

A. Well, there is a selection period that begins when a voltage selection scan line, X1, goes from VOFF to VON. That particular selection period ends when the voltage of selection scan line X1 goes from VON to VOFF.

There are other selection periods, but that particular selection period begins with the transition to high and it ends on the transition to low.

(Telephonic Interruption.)

Q. With respect to the claim, claim 1, it says, "A selection scan driver which sequentially selects said plurality of selection scan lines in

122

each selection period."

So with respect to that claim limitation, how do I know, if I'm looking at a circuit, when the selection period begins and ends?

MR. TSUEI: Objection, form.

A. I guess in the broadest context, a selection period would end when there were no -- in this -- again, in this embodiment, a selection period would end when there were no selection lines at the VON voltage.

Q. What about when scan line X1 goes off, scan line X2 is simultaneously going on; right?

A. Yes. Very close, yes.

Q. Okay. Very close.

There would be some time difference in between the two?

A. Pardon me?

Q. Well, you said "very close." So there -- there will be some small time difference between when scan line X1 goes off and scan line X2 goes on?

A. From this timing diagram, I can't really tell whether an overlap would be -- you know, would be allowed or whether there was some dead

123

space that was required between the two pulses. But, essentially, it's -- it's close to being simultaneous.

Q. And wouldn't you expect that -- for instance, in the embodiment of Fig. 4, when you have loaded your image on to the last row that you would start again at the first row?

A. That depends on the -- on the -- on the driver configuration and on the signal source. Many times there's a -- there can be some time lag between frames.

Q. Well, if we look at row 1 in Fig. 4, it actually shows you that at the end of the frame it starts again with scan line X1; right?

A. Yes, it does show that.

Q. So does the selection period in Fig. 4 never end?

MR. TSUEI: Objection, form.

A. Again -- but, you know, my interpretation of Fig. 4 would be that -- that there are multiple selection periods, and each selection period ends when there's a -- when that particular row transitions -- the scan line for that particular row transitions from on to off.

MR. FRISCH: Ms. Hensley, do I have the

124

ability to draw on Fig. 4 for a moment?

REMOTE TECHNICIAN: I can provide that. Just a moment.

MR. FRISCH: Great. Thank you.

REMOTE TECHNICIAN: All right. You only need to click on the document to pick up control.

MR. FRISCH: Okay.

BY MR. FRISCH:

Q. Mr. Flasck, you can see Fig. 4 on the screen; right?

A. Yes. It's on my laptop. It's a little small, but I can see it.

Q. Okay. Well, I'm going to do my best to annotate here with my computer mouse, but it might be a little difficult. But let's see if we can work through this.

So I'm going to mark two vertical lines in red, and I'm meaning to mark these the exact same place, where the vertical lines currently read TSE at the top of the figure. I am doing a somewhat poor job of it. But can you tell where I'm trying to mark there?

A. I think you're trying to mark the leading edge and the falling edge of a voltage

125

wave form on scan line X1.
Q. That's right.
And maybe I can try one more time and make it a little bit clearer here. Let me erase this.
A. That's all right.
I mean, if you're saying it's the leading edge and the falling edge, that's understandable to me.
Q. Sure.
I just want to make a record here, so I think it's a little bit cleaner the way I've drawn it now.
Can you see that?
A. Yes.
Q. Okay. Now, in your opinion, is that a selection period, as Solas has construed it, for claim 11 of the '042 patent?
A. Yes.
Q. Okay. And I'm going to put a 1 next to this one.
Now, if I use the same line on the left but I draw a new vertical line coming up off of the falling edge of scan line X2 -- do you see that?

126

A. Yes.
Q. I'm going to put a horizontal arrow to try to indicate that time period. I'm going to put a 2 over it.
Do you see that?
A. Yes.
Q. Now, in your opinion, under Solas's construction of selection period, as it's used in claim 11, is that a selection period?
A. I would say that in this embodiment, in applying the -- Solas's proposed construction, that would be two selection time periods.
Q. And how do you know that?
A. Well, because in the first -- on the first line, when the -- when the voltage goes high, there is one plurality of pixel circuits that are selected, that is, the pixel circuits in the first row. Then when that comes down, the falling edge of that one, those -- those selected pixels are deselected at that point. And at that point in time, the voltage on scan line X2 goes up; and you are, therefore, in this embodiment, selecting another set of plurality -- another plurality of pixel circuits.
So that's -- it's selecting a different

127

plurality of pixel circuits, and I would call -- I would call that a -- a second selection period.
MR. FRISCH: Okay. And is it possible, Ms. Hensley, to mark this as an exhibit, Exhibit 9?
REMOTE TECHNICIAN: Certainly. Just a moment.
(Exhibit 9 was marked for identification and is attached to the transcript.)
REMOTE TECHNICIAN: All right. This has been saved as Exhibit 9.
MR. FRISCH: Okay. Thank you.
BY MR. FRISCH:
Q. Mr. Flasck, I want to move on to paragraph 47 of your corrected declaration, Exhibit 2.
Now, in paragraph 47, you -- you are citing to a specific patent that shares at least one named inventor with the '042 patent. And the patent you're pointing to is U.S. Patent No. 7,944,414; right?
A. Yes.
Q. And, in your opinion, the '414 patent supports the idea that multiple rows can be selected at one time during a selection period;

128

right?
A. Yes.
Q. Okay. How did you find the '414 patent?
A. How did I find it?
Q. Yes.
A. I don't recall.
Q. Did you search for it yourself?
A. Again, I started looking at -- at these patents a couple years ago. I -- I did some search on my own. In other cases, you know, prior art or possible prior art was supplied to me. I don't recall how -- how I became aware of the '414.
Q. Did you read the entirety of the '414 patent?
A. Sure. I -- I scanned -- I scanned the -- the patent. I didn't parse the patent sentence by sentence, but I looked at it all.
Q. So scanning the patent, are you able to be confident that it's using "selection period" in the way that you say it has in paragraph 47 of your corrected declaration?
A. That was -- that's my understanding, and it's still my understanding today.
MR. FRISCH: Let's take out a copy of

129

the '414 patent. It's previously marked as tab 10. And if we can mark it as Exhibit 10.

(Exhibit 10 was marked for identification and is attached to the transcript.)

A. Okay. See, I did not preload that on my...

Q. If it helps, the exhibits are being dropped into the chat window, so you're -- you're happy to look at it on the screen, but you can also download a copy if that helps you any.

A. I would have to download it on to my desktop computer. Let me -- let me -- let me take 30 seconds and see if I can...

No, I don't have it -- I don't have it preloaded here, so let's -- let's do the best we can with...

Q. Okay. I'll try to lead you through here. So we can take it one step at a time and you can see where I'm -- what I'm calling out.

A. All right.

Actually, can -- can somebody just e-mail me a -- a copy of this thing so I can look at it on the big screen?

Q. If counsel for RAK Law wants to e-mail

130

you a copy, a clean copy, I have no problem with that.

MR. TSUEI: Sure. I'm happy to do so, Mr. Flasck.

THE WITNESS: Okay. Yeah, I -- I -- the copy here is just -- it's too small to read, I'm afraid.

MR. TSUEI: Sure.

So, Mr. Flasck, for the record, I'm sending you a copy of Flasck 10, which I've downloaded from the chat box in the Zoom window. You should be receiving it shortly.

THE WITNESS: Okay.

BY MR. FRISCH:

Q. You can just let me know when you've got the copy and you're able to look at it.

A. Okay. It looks like it came through.

It looks like it has been opened.

Okay. I have it. Thank you.

Q. No problem.

And to be clear, so you have a copy of U.S. Patent 7,944,414; right?

A. Yes.

Q. And if we look at the front page, it has -- has listed as the first inventor Tomoyuki

131

Shirasaki, who's one of the named inventors of the '042 patent; right?

A. Yes.

Q. Okay. And do you know what the problem was that the '414 patent was trying to solve?

Actually, why don't I direct you to --

A. Yeah, I don't -- I don't -- I don't recall right off- -- right offhand.

Q. Okay. Let me direct you to a specific part of the '414 patent. If we go to column 4, line 61.

A. Okay. Yeah.

Q. That -- that portion of the patent is in the background of the invention section; right?

A. Yes. Column 4, line 61.

Q. Okay. And if you can read column 4, line 61, through column 5, line 2 -- you can read it to yourself. You don't have to read it out loud.

A. Okay. All right. One second.

Okay. I read it.

Q. So one of the problems that the '414 patent was trying to solve was an issue that when the number of scan lines arranged on the display panels increased and the selection period of each

132

scan line is set short, there's no longer sufficient time to perform a write operation for each line; correct?

A. Yes.

Q. And this is particularly true where the value of a gradation current is small; right?

A. Yes.

Q. And in that particular paragraph that you read, it starts out at column 4, line 61, by saying, "Additionally, when the number of scan lines arranged on the display panel is increased and the selection period (i.e., a write time) of each scanning line is set short..."

And then it continues; right?

A. Yes.

Q. And so at least in that portion, when it's talking about the problem, it's talking about a selection period for one scan line; right?

A. Yes.

Q. Now, the alleged invention of the '414 patent was to find a way to select multiple scan lines at the same time; right?

A. I believe so.

Q. And to some degree, that's why you're pointing at the '414 patent to support your

133

opinions in this matter; right?
A. Yes.
Q. And the figures of the '414 patent demonstrate how multiple scan lines could be selected at once; right?
A. Yes.
Q. For example, if we look at Fig. 2, it shows how multiple scan lines could be connected to one shift block; right?
A. One second.
Yes.
Q. And if we look at Fig. 8, it shows how one scanning line can snake from -- from one row of pixels to the next row of pixels; right?
A. Yes.
Q. Okay. Neither of the two methods we just looked at in Fig. 2 or Fig. 8 are discussed in the '042 patent; right?
A. That's correct.
Q. Okay. Now, if we look at the face of the '042 patent for a second -- so if we go back to Exhibit 5 and we look at the face of the '042 patent. Let me know when you're there.
A. I'm there.
Q. The earliest for an application priority

134

date for that patent is January 16th, 2004; right?
A. Correct.
Q. And if we go back to the '414 patent, which is Exhibit 10, and we look at the face of that patent, the earliest foreign filing date for that patent is May 28th, 2004; right?
A. It says "Foreign Application Priority Data," and the earliest date is May 28th, 2004.
Q. So that's after the earliest foreign filing date for the '042 patent; right?
A. Yes.
I'm not -- I'm not a lawyer, so I'm not exactly sure what the dates mean, but -- but May 28th, 2004, is indeed after January 16th, 2004.
Q. So I know you're not a lawyer, but that would suggest to you that the '414 patent invention came after the '042 patent invention; right?
MR. TSUEI: Objection, form.
A. Again, I'll -- I'm not a lawyer. I'll take your word for it.
Q. You didn't compare these dates when you were providing your declaration; right?
A. No.

135

Q. Now, if we assume that the '414 patent invention came after the '042 patent invention, given that part of the invention of the '414 patent was to include the selection of multiple scan lines at the same time, wouldn't that suggest that that was not part of the invention of the '042 patent?
MR. TSUEI: Objection, form, calls for a legal conclusion.
A. Well, the '0 -- '042 patent, the claims are a combination of various limitations, and all of the limitations within a claim have to be in the prior art if you're going to talk about -- I don't know -- invalidity or something. I'm not opining on invalidity. I'm just using this as an example of multiple scan lines being selected at the same time.
And, you know, which -- which has priority over the other was not -- in terms of invalidity consideration, was not a -- a -- was not a high priority for me because there are other limitations in the '042 claims that -- that may make it unique over -- over any claims in the '414, even though the '414 does disclose multiple scan lines being activated at the same time.

136

Q. To be clear, Mr. Flasck, I'm -- I'm not talking about invalidity in any way. I'm trying to keep my questions limited to your claim construction opinion.
You cite to the '414 patent in your declaration as support for how the inventors used the term "selection period."
Right?
A. Just a second.
Yes, that's a fair characterization.
Yes.
Q. And we just talked about that one of the inventions of the '414 patent was selecting multiple lines in a selection period; right?
A. No.
Q. You don't believe that one of the inventive aspects of the '414 patent was selecting multiple scan lines in a selection period?
MR. TSUEI: Objection, form.
A. That is -- that is one -- that is one possibility, but a claim is valid -- a claim is an invention because of the combination of limitations in it. Just because one limitation in the -- in the '042 was disclosed in -- possibly was disclosed in the '414 does not mean that that

137

claim is invalid. And the invention is the combination of limitations, not a specific limitation.

I mean, selecting two lines at a time or more than one line at a time goes back to the 1980s. I did that back in -- back in the mid 1980s. That, in and of itself, is not an invention.

Q. Based on what you put in your declaration, you believe that how the inventors used the term "selection period" in the '414 patent is relevant to how it's being used in the '042 patent; correct?

A. Yes.

Q. Okay. And you think it's appropriate to look at a different patent, albeit with some shared inventors, to determine how terms should be construed in the '042 patent?

A. I think that's one piece of information that can inform an opinion.

Q. Even if part of the alleged invention of the '414 patent was specific to this aspect of selection period?

MR. TSUEI: Objection, form.

A. There are many aspects of the '042

138

patent. For instance, a drive transistor. The drive transistor in and of itself is not -- is not an invention of the '042 patent. Was used, you know, for years before. It's a combination of the -- of the limitations that's the invention.

Q. Mr. Flasck, I would appreciate if you'd keep it limited to claim -- your -- your answers limited to claim construction. I'm -- I'm not talking about invalidity or -- or any opinions on that matter.

A. Well, you keep asking about what -- what is an invention.

Q. So, perhaps, you're not understanding my question. Let me -- let me take a few steps back.

Why is it that you think it's appropriate to look at how the term "selection period" is used in the '414 patent to determine how this -- the term "selection period" is used in the '042 patent?

A. The term "selection period" was used in the '414 patent before it was used in the -- I'm sorry. The term was used in the '414 patent by the same inventor, by at least one common inventor. So in the industry, it indicates that the term "selection period" is not limited to

139

selecting one scan line, but it -- it can refer to selecting multiple scan lines.

Q. Even though the '414 patent has a later priority date?

MR. TSUEI: Objection, form.

A. Yes.

Q. And so, in your mind, there's no way that the inventors would change how they use a term from one patent to another?

MR. TSUEI: Objection, misstates testimony.

A. They could.

I'm just saying that the term "selection period," you know, is -- it's used, it's out there, and even one of the inventors of the -- of the '042 patent used it in a manner where multiple scan lines were activated or were turned on or whatever at the same time.

Q. Let's go back to your corrected declaration. And we'll go to page 17. I want to look at subheading B, where you talk about the term "sequentially selects said plurality of selection scan lines in each selection period."

Do you see that?

A. Yes.

140

Q. Solas's proposed construction is plain and ordinary meaning?

A. Yes.

Q. What do you understand plain and ordinary meaning of that term to be?

A. It means what it says, "Sequentially selects said plurality of selection scan lines in each selection period."

Q. And I note that on the next page of your declaration you have a number of definitions for certain terms.

For instance, in paragraph 50, you have definitions for the term "sequential."

Right?

A. Yes.

Q. And are you suggesting that the plain and ordinary meaning of the term uses one of those definitions?

A. Yes.

Q. Is there one in particular that you believe is appropriate?

A. I think -- I think -- I think any of the -- any of the quoted synonyms or definitions would work.

Q. Okay. Let's go to the next term that

141

you discuss, starting at the bottom of page 18. That's the term "designating current."
Right?
A. Yes.
Q. And Solas's proposed construction is "plain and ordinary meaning, i.e., current designating a value corresponding to an image signal"?
A. I'm sorry. Was there a question?
Q. Well, I -- that's correct, that Solas's proposed construction is "plain and ordinary meaning, i.e., current designating a value corresponding to an image signal"?
A. Yes.
Q. And what is your understanding of what it means to designate a value corresponding to an image signal?
A. The designated -- designating current is the current that maps on to or corresponds to the image signal.
Q. In paragraph 53 you disagree with defendant's construction that the designating current must be set to a constant value; right?
A. Yes.
Q. And if we look at the third line of

142

paragraph 53, you say, "To the contrary, the specification never describes the designating current as set to a constant value during the first reset portion."
Right?
A. Yes.
Q. No designating current is applied during the first reset portion; right?
A. One second.
Okay. If we look at Fig. 9, it is true that during the first reset portion, there is no designating current. That is -- in Fig. 9, that's called the current of CTj. However, during the selection period TSE, the timing diagram, shows that the designating current, C -- CTj, is not a constant but, in fact, it asymptotically approaches a given value. There's a rounded corner there.
So even in this case, it is not a constant value even during the -- it's not a constant value during the TSE, and it's not even a constant value in the second portion of the TSE after the Tr portion of it.
And I found nothing -- nothing in the written description that would require the -- that

143

current to be a constant value.
Q. Okay. Well, I would appreciate it if you could try to limit your answers more towards the question I was asking.
So we could look at Fig. 9. That -- that -- that's fine. But in your declaration, you say, "The specification never describes the designating current as set to a constant value during the first reset portion."
But you agree, right, that there is no designating current applied during the reset portion?
Right?
MR. TSUEI: Objection as to form.
A. In this -- in this embodiment, in this configuration, there is no -- there is no designating current provided during the reset portion.
Q. Well, in fact, it's not just this embodiment; right?
If we look at claim 1 of the '042 patent, it specifically talks about a selection period having a first part, where you apply a reset voltage, and a second part, where you apply a designated current; right?

144

A. Yes.
Q. Okay. And it -- even as it sits in claim 1 of the '042 patent, there is no designating current applied during the first reset portion; right?
A. Yes.
Q. So you wouldn't expect a designating current to be set at a constant value during the reset portion because it's not set to any value at the reset portion; right?
A. Yes.
Q. Now, you go on in paragraph 53 of your declaration, the fifth line, and you say, "Claim 1 itself describes that the 'designating current' changes and is a value corresponding to an image signal."
Do you see that?
A. Yes.
Q. Where in claim 1 does it describe the designating current as changing?
A. I guess I was saying that it -- it changes from zero to the -- the designated current value required to correspond to an image signal.
Q. So you were saying it changes from not being applied to being applied during the second

145

part of the solution period?
A. Yes.
Q. Now, let's go back to Fig. 9 that you were discussing.
And let me know when you're there.
A. I'm there.
Q. Okay. And you were pointing to, I believe -- let me know if I'm correct, but you were pointing to the fifth row of Fig. 9, the current of CTj; right?
A. Yes.
Q. Okay. And the -- that row that says "Current of CTj," what does that show?
A. That shows the designating current supplied by the drive circuit to the data line.
Q. And you note in your declaration, and I think you were noting a moment ago, that that line is shown as asymptotically approaching a stable value during the selection period; right?
A. Well, you can look at -- it has -- it has three different lines, and they all -- they all start off as a slope and then tend to asymptotically approach some value.
Now, if you look at the -- in Fig. 9, the first -- you know, the first line, if you

146

will, or the first row, it's almost like a wedge. I mean, it's a -- it approaches a stable value but slowly. The second one, it approaches it maybe a little more quickly. The third one, it's intermediate. So these seem to be approaching a -- a stable value, but they're certainly not constant -- they're not constant.
Q. Okay. And so the claim, as we just looked at, when it talks about designating current, it's talking about the current that's supplied during that second part of TSE that's labeled at the top of Fig. 9; right?
A. Yes.
Q. Okay. And I think you were just kind of talking about three humps in the -- in row 5 of current CTj, and we're looking at the second of those; right?
A. Yes. That's the tallest one, yes.
Q. Okay. And in that one, in -- in the tallest one, it asymptotically approaches a stable value; right?
A. Yes.
Q. And that stable value is a constant value; right?
A. No.

147

I mean, that -- that stable value changes from moment -- that -- the value changes from moment to moment on that line, but it also is not -- it's -- it's -- even if you're talking about from line to line, it's certainly not constant from line to line. A -- a constant voltage [sic] would -- you know, would have a flat top. It wouldn't have a -- wouldn't have a curved top like that.
Q. Well, first, are we looking at a voltage or a current in this row?
A. I'm sorry. We're looking at the current. If I said "voltage," I meant current.
Q. Now, I was saying: Once it reaches what you call the stable value on that particular line, it's a constant current from that point until the end of the selection period; right?
A. Depending on, you know, how quickly it reaches that. It could be a constant value for the remainder of that period, but we see, for instance, in the -- in the first -- in the first row, if you will, the one before the big -- the tall one, that one -- the current change is basically almost throughout the whole period.
Q. But I want to focus on the tallest one

148

because that's what we talked about, was what the claim is focused on.
So in the tallest one, right, it has a cur -- an asymptotic curve, as you called it, and then hits a stable value; right?
A. It asymptotically approaches a value. That value is not a constant value.
Q. Why is it that you think that value is not a constant value?
A. "Constant" means independent of time.
You can see that during the pulse, during the selection period it is -- it is not the same. It's smaller at the beginning of the selection period and it rises. And the -- the fact it asymptotically approaches some value does not mean that it's a constant current value.
If you mean constant from row to row, then it's clearly not constant from row to row because there's -- there are -- there's other information coming in.
Q. Mr. Flasck, my question had nothing to do with row to row. I didn't say anything about row to row. And I was very specifically looking at the tallest of the three humps we've been discussing in row 5 on Fig. 9 that's labeled

149

current of CTj. And I specifically asked for the time point when it hits the stable value to the time point at the end of the selection period. At that point it stays constant; right?

A. I believe it asymptotically approaches a value. That means that it never reaches a stable or constant value. It gets closer and closer the longer you wait, but it never reaches a constant value.

Q. What causes the asymptotic aspect of the curve?

A. I don't believe the patent goes into that. It could be -- could come from a number of sources.

There's -- there's some problems with active matrix displays where -- where changing currents -- where large changes in current at a high frequency, like a step function, can cause -- can cause electromagnetic interference. And sometimes you -- you put a rising -- you put a curved edge on the -- on the rise or the fall to eliminate some EMI, so electromagnetic interference.

It could be caused by parasitic capacitance.

150

It could be caused by the rise time of the drive transistors in the column driver.

It could come from a number of sources.

I -- you know, it could be a way of -- of avoiding ringing so that you get closer to the -- the current that -- that you want.

I think the -- the patent is silent on that. There's a number of possibilities. But my only -- in the claim construction, my thought is that Samsung's construction's clearly not correct because a constant value would have a flat top and as- -- a sloping asymptotic approach is not a constant value.

Q. Is it possible that the current is set to a constant value to come out of the drive circuitry but that it takes time to reach that value?

A. I don't know what you mean by that.

This is the -- this is the current coming out of the -- CT is the -- is the current at the connector terminal between the data driver -- the peripheral data driver and the data lines.

Q. And if the current coming out of that driver is set to a constant voltage, would you

151

expect it to go straight to that constant voltage or would it take -- let me start over.

We're talking about a current. If you were to look at the current source driver and you were to set a constant current to come out of that current source driver, would you expect that it would go straight to that constant current or that it might take some time to reach that constant current?

A. Depends on the strength of the driver.

If you wanted it to have a flat top, if you wanted it to be a constant current, you could make a constant current.

Q. But if the driver is not strong enough, it may take some time for that current to get to the set current value; right?

A. That would be -- you know, that would be one possible cause for a rounding on the rising edge. That's true.

Q. I'm going to move now to page 20 of your corrected declaration. I want to talk about the term "current lines."

Do you see where you start your opinion on page 20?

A. Yes.

152

Q. Now, Solas's proposed construction is "Plain and ordinary meaning, i.e., lines through which a current flows."

Right?

A. Yes.

THE WITNESS: We've been going for a little over an hour now. Can we have a five-minute break --

MR. FRISCH: Sure.

THE WITNESS: -- before we start this?

MR. FRISCH: Yes.

Why don't we go off the record.

THE WITNESS: Okay. See you in about five.

THE VIDEOGRAPHER: Off the record at 5:55.

MR. FRISCH: Okay. Thank you.

(Recess in Proceedings.)

THE VIDEOGRAPHER: On record, 6:00.

BY MR. FRISCH:

Q. Mr. Flasck, I'd like to go back to page 20 of your corrected declaration and take a look at your opinions that discuss the term "current lines." Okay?

A. Okay.

153

Q. Now, you explained earlier in the deposition that you opined on a number of the same terms from the '042 patent in a previous HP declaration; right?
A. Yes.
Q. And in that declaration, you supported Solas's proposed construction as well; right?
A. Yes.
Q. Now, in this matter, Solas's proposed construction is "plain and ordinary meaning, i.e., lines through which a current flows."
Right?
A. Yes.
Q. But in the HP declaration, in the HP matter, Solas's proposed construction was "conductive lines for carrying current."
Right?
A. I believe that's correct. Let me go --
Q. If you look at paragraph 56 of your corrected declaration, that might help.
A. Yes.
Q. Now, the language of the asserted claims, the '042 patent has not changed since you put in your HP declaration; right?
A. Yes.

154

Q. And the language of the specification of the '042 patent has not changed since you put in your HP declaration; right?
A. Yes.
I'm sorry. I'm sorry. What was the question?
Q. The language of the specification of the '042 patent --
A. Oh.
Q. -- has not changed --
A. Yes.
Q. -- since you put in your HP declaration; right?
A. Yes.
Q. So your change in construction is not based on any change to the patent itself; right?
A. Correct.
Q. So your change in construction is based on an argument that Samsung made, as you say, in a different context involving different patents; right?
A. I was asked to consider the current Solas-proposed construction. And part of that consideration was based on -- as I said in argument, that was a Samsung argument that was

155

presented to me in perhaps another context.
Q. You say in -- in paragraph 56, the line that ends -- or that flips over from page 20 to 21, you say, "I understand that Samsung's argued in a different context and involving different patents," and then you continue; right?
A. Yes.
Q. And so you've changed your construction based on Samsung's argument from another matter?
A. I was asked to reconsider the -- or to consider the new proposed construction based -- based on perhaps motivation of Samsung's argument, but also on the basis of was my prior position requiring conductive lines for carrying current redundant. So those were two considerations.
Q. What Samsung matter were you considering? What other Samsung matter were you considering?
A. I'm not -- I don't know what the details are of that, of that other context.
Q. So you don't know which case you're discussing when you say "different context"?
A. That's correct.
Q. And do you know what the different patents that you reference are?

156

A. No. I was just told that they were different patents.
Q. And so you don't know what the claims of those patents look like; right?
A. That's correct.
Q. And so you don't know how Samsung was applying those claims to its products, for instance; right?
A. That's also correct.
Q. How did you find out about this other case and this other argument?
MR. TSUEI: I'll instruct the witness to be careful to not reveal the content of attorney-client communications and attorney work product.
And with that said, and without revealing such information, Mr. Flasck, you may answer the question.
A. I was informed that by RAK Law.
Q. And I assume, then, you were provided some facts about that other case that you considered in forming the opinions you've provided, for example, in paragraph 56 of your corrected declaration; right?
MR. TSUEI: Objection as to form.

157

A. All the information that I was provided is -- is laid out in my declaration here.
Q. Okay. So there are no facts that you considered other than what is here in your declaration in paragraph 56?
A. Sorry. Ask that question again.
Q. I -- I just want to confirm: So there are no facts that were told to you that you considered in providing your opinion other than what's set forth here in paragraph 56 of your corrected declaration?
A. I was not given any further facts regarding the Samsung argument in that different context involving different patents, that's correct.
Q. You didn't consider any transcripts from that case; right?
A. No.
Q. You didn't look at any expert reports from that case?
A. No.
Q. You didn't look at any claim construction orders from that case; right?
A. No.
Q. I want to go down to your opinion at

158

paragraph 57, which is on page 21 of your corrected declaration.
Am I correct that in paragraph 57 you're discussing a number of elements of defendant's construction that you think are unnecessary because they're superfluous to what else is in the claims?
A. Yes.
Q. So, for example, you don't think it's necessary to include pixel circuits as part of the construction of current lines, but you agree that claim 1 already requires that each current line is connected to a plurality of pixel circuits; right?
A. I'm -- I'm offering an opinion on the proper construction of "current lines." What additional limitations or connections or requirements are put on current lines in the claims is a separate matter.
Q. Well -- but the reason that you're saying they're unnecessary to include a definitive construction is because they're already in the claim; right?
A. That is also true.
Q. And you say it's unnecessary to include data-driving circuits in the construction. And,

159

again, that's because the claim already talks about data-driving circuits; right?
A. Primarily it's unnecessary because the term "current lines" is a plain and ordinary meaning that any POSITA would understand.
Current lines are lines through which a current flows. It's -- it's a simple -- it's a simple concept. It's a simple structure. It doesn't need a lot of elaboration. A POSITA would understand what a current line is.
And in addition to just the generally known understanding of what a current line is, it's not necessary in construction to in -- it's not unnecessary -- it's not necessary in Samsung's construction to add what's connected to the current lines or what the purpose of the current lines are or anything else.
I mean, the term stands on its own. A current line is a -- it's a well-known thing. And if you have to, you know, construct it, it's a line that carries current.
Q. Yeah, but I just want to make sure I'm understanding your opinions correctly.
You're not -- you're not disputing that other aspects of Samsung's proposed construction

160

are required by the claim, you just don't think that they're required to be part of the construction of current lines; right?
A. That's correct.
Q. All right. So you're not -- you're not disputing that a -- you know, for instance, the current lines carry both a designated current and a reset voltage, you're just disputing whether that needs to be in the construction of current lines itself?
MR. TSUEI: Objection as to form.
A. I neither -- in the claim construction here, I'm neither agreeing with nor disputing whether it -- the current lines carry both a designating current and a reset voltage.
I'm just saying that the term "current line" is a well-known term. It's clear, plain and ordinary. And, you know, again, what it does, whether or not it -- it provides both a designating current and a reset voltage doesn't really impact on -- on what "current lines" means, whether those requirements are in the claim or not.
Q. Well, we looked back at claim 1 of the '042 patent. Claim 1 does talk about each of the

161

current lines carrying both a designated current and a reset voltage; right?

A. One second.

Okay. It says, around paragraph 29, around line 15, "A data driving circuit which applies a reset voltage to said plurality of current lines."

And it later on goes to say, "and supplies a designating current having a current value corresponding to an image signal of said plurality of current lines."

So, yes, the -- the claim says that the data driver applies the reset voltage and applies the -- the designating current to the current lines. Yes.

Q. Okay. So -- so -- just to be clear, then, so you're not -- you're not disputing that aspect of Samsung's proposed construction by -- or -- let me -- let me start over.

You're not disputing that that aspect of Samsung's proposed construction is required by the claim, but you don't think it's necessary to include that in the construction of current lines; is that correct?

A. Yes.

162

Q. I want to move on to the next term we discuss in your declaration, starting on page 22. The term is "pixel circuit."

If you can let me know when you're there.

A. Okay. I'm there.

Q. If we go to paragraph 63, you say that "Samsung's proposal carries an inherent ambiguity which has the potential to be expanded beyond the plain and ordinary meaning of 'pixel circuit' by encompassing switches and storage elements outside of what a POSITA would understand a, quote, 'pixel circuit' to be."

Right?

A. Yes.

Q. Can you explain what you mean when you say the proposal carries this ambiguity?

A. Sure.

Samsung's proposed construction is a circuit that includes the switching and storage elements used to drive a light emission element of a pixel. And I explain in paragraph 62 -- let's see which -- I reference Fig. 3.

I believe Samsung's construction is broad enough to potentially include switches --

163

well, switches SJ, that is in Fig. 3, the switches labeled 31 and 32, which are in the data driver and not in the -- not in the pixel circuit.

Q. You think Solas's proposal does not contain that ambiguity. That's how you ended paragraph 63; right?

A. Yes.

Q. Now, how is it that Solas's proposal gets rid of that ambiguity?

MR. TSUEI: Objection to form.

A. Well, I go with the plain and ordinary meaning. A POSITA would understand what a -- you know, what a pixel circuit is and the -- in the -- in the specification, if you look at Fig. 3, PI-1, for instance, is the pixel or pixel circuit. And that includes DJ -- DIJ and EIJ. DIJ being the drive circuit and EIJ being the emissive element. So the -- so the pixel circuit is the combination of DIJ and E -- maybe it's D1J and E1J. I can't quite make it out.

But that's -- that's the pixel circuit at that location. The pixel circuit does not -- does not extend up into the -- up into the data drivers. So that's why I'm saying plain and ordinary meaning.

164

Q. Now, you understand if this case goes to trial and Solas's construction is accepted, at some point the jury is going to be -- have to be able to apply this construction; right?

MR. TSUEI: Objection, form.

A. Sure.

And I believe the plain and ordinary meaning is -- is the right construction.

Q. And under the plain and ordinary meaning construction, how does one know if a particular transistor or storage element is part of a pixel circuit or not part of a pixel circuit?

A. The -- the specification says that, you know, the -- the pixel circuit is P -- P1J, for instance, which is composed of D1J and E1J. It does not include SJ or SJ plus 1.

Q. Okay. But assuming that the jury is looking at another circuit, right, they won't be necessarily looking at the circuit that's provided in the '042 patent, how does one tell under Solas's construction if a particular transistor or a storage element is inside or outside the pixel circuit?

MR. TSUEI: Objection, form, incomplete hypothetical.

165

A. I'm not sure how to answer that.
I mean, a POSITA would understand that a pixel circuit are the -- are the switches and storage elements in the pixel that are used to drive the light emission element of a pixel.
Q. And when you say "that are used to drive the light emission element of a pixel," you are not limiting yourself to the drive transistor; right?
A. No.
Q. That would also include the selection transistor, for example?
A. Sure. Yes.
Q. It would also --
A. I mean, it includes in the drawing what -- you know, essentially what the -- in this -- in this embodiment, what D1J is. It would include the drive transistor, the capacitor, the holding transistor, the selection transistor, IN -- IN, the wiring connecting them all.
Q. And if you had other transistors working in concert with these three transistors, for example, one that initializes the voltage on one side of the capacitor, CS, would that also be part of the pixel circuit?

166

A. Oh, sure. Like I said, this is -- this is a -- these are fairly straightforward T3-1C configurations. Three transistors, one capacitor. It's quite common to have even more than that, four or five, even six transistors, and a couple of capacitors in the pixel circuit. So those would all be included. It's just that in this embodiment, that's what I -- that's what I was talking about.
Q. So if you had a seven-transistor circuit, that would also -- all those transistors would be part of the pixel circuit?
A. If -- sure, if that was -- if that was the circuit that -- that was used to drive a light -- light emission element in the pixel.
Q. Okay. I want to switch to another term for a moment. Just give me one moment.
Okay. If we can turn to page 37 of your corrected declaration.
A. Okay.
Q. And on page 37, you're addressing a term from the '615 patent; right?
A. Yes.
Q. And that's the term "light emission control section."

167

Right?
A. Yeah.
Q. Apologies. I want to -- give me one moment. I brought you to the wrong page. I apologize.
Let's go back to page 33.
Are you there?
A. Yes.
Q. Okay. My apologies.
This is the term that I wanted to discuss, the term "light emission drive circuit."
Do you see that?
A. Yes.
Q. And the opinions that you've provided are that you disagree with defendant's construction; right?
A. Yes.
Q. And -- now, in paragraph 85, you note that Samsung's proposed construction for the term "light emission drive circuit" in the '615 patent is the same as its construction for the term "pixel circuit" that we were just discussing in the '042 patent; right?
A. Yes.
Q. And then you go on to note that you do

168

not see any basis for assigning the exact same construction to two different terms from two different patents which share inventors and initial signee, who presumably chose the words and phrases they did, at least for some reason than no reason at all; right?
A. That's what it says, yes.
Q. Can you explain what you meant by that?
A. Well, as it says, the -- in one patent, the same construction is used for pixel circuit and in -- in this case, it's used for the light emission drive circuit.
The light emission drive circuit is -- is, in my view, part of the pixel circuit, but it's -- but it's not the whole pixel circuit. So I don't understand why the same inventors would use the same -- or understand that Samsung's proposal would be correct for two different elements.
Q. I think you said you -- your understanding would be that the light emission drive circuit would be part but not all of a pixel circuit; is that correct?
A. Yes.
Q. What -- what part of the pixel circuit

169

is not in the light emission drive circuit, to your understanding?
MR. TSUEI: Objection, form.
A. Okay. Just a second.
I'll -- I'll take back that last part.
It's -- there are two different patents, two different terms. Not sure why Samsung's proposed construction would apply to both terms.
But in the -- in the '615, the light emission drive circuit has the electric charge accumulation section and the light emission control section and other things.
So, yeah, I'll -- I'll -- let me revise my comment on the -- on what is included in what.
But it's just a -- it's just a fact that you have two different terms that -- that Samsung is using the same construction for.
Q. Okay. So it's -- it's because you don't see a basis to assign the same -- the same construction to two different terms that are used in -- in different patents because you'd expect that the applicants chose their words carefully. Is that a fair summary?
A. Yes.
Q. And would you similarly expect that if

170

the same inventor used different words across the claim of the same patent, those words would also have different meanings?
Right?
A. That's certainly possible.
Q. Is -- that would be what you would expect; right?
MR. TSUEI: Objection, form.
A. The same terms used in the same patent but in different claims, in principle aren't identical, but I think one can -- one can use that in conjunction with the written specifications to inform an opinion about what -- what the proper construction is.
Q. And perhaps -- I apologize. Maybe my -- my question was unclear.
If you had different terms used in the same patent, you wouldn't expect those terms to have the same meaning; right?
A. Oh.
That's, in general, true.
And certainly in the claims, I would expect different terms to mean different things, yes.
Q. Because applicants are usually precise

171

in their wording; right?
A. They should be.
Q. Now, I want to go to another term here. If we can go to page 31 of your corrected declaration.
Do you see where you start talking about exceeding a threshold value?
A. Yes.
Q. Solas has proposed the construction plain and ordinary meaning, i.e., has an absolute value larger than that of a threshold value; right?
A. Yes.
Q. Now I want to take a look at claim 11 of the '042 patent or -- my apologies.
I want to take a look at claim 11 of the '615 patent.
A. I'm sorry. Where -- where are we now?
Q. Yes. If you could take a look at claim 11 of the '615 patent, Exhibit 4.
A. Yes.
Q. Now, claim 11 requires during the precharge time period that, quote, "The data driver applies a precharge voltage exceeding a threshold -- threshold value of the drive

172

transistor of the data line."
Right?
A. Yes.
Q. And the term "exceeding a threshold value" that we were looking at in your declaration comes out of this portion of the claim that we were just looking at; right?
A. Yes.
Q. Now, if we look at claim 1 of the '042 patent, is that a claim that you've considered in providing your opinions?
A. Claim 1 of the '042?
Q. Oh. I apologize. That's my fault. I want to take a look at claim 1 of the '615 patent.
A. Oh, all right.
Q. Is claim 1 of the '615 patent a claim that you considered in providing your opinions in your corrected declaration?
A. I looked at it. I did not focus on it.
Q. Now, if we take a look at -- at claim 1 and we go to the first of the two wherein clauses, starting at around line 32 of column 46 -- do you see that?
A. Yes.
Q. And it includes a limitation starting

173

around line 35, where it says, "A voltage having an absolute value that is larger than an absolute value of a threshold voltage."
Right?
A. Yes.
Q. And that's the same comparison that we were just looking at in claim 11; right?
A. I'm sorry. That's the same what?
Q. Comparison that we were looking at in claim 11.
A. Yes. It's -- it's comparing voltage to a -- well, yes.
Q. It's -- it's comparing the precharge voltage to a threshold voltage; right?
A. Yes.
Q. Now, in claim 1, the applicants specifically use the words "absolute value."
Right?
A. Yes.
Q. And they specifically said that you have to have a voltage having absolute value that's larger than the absolute value of the threshold voltage of the drive transistor; right?
A. Yes.
Q. Now, in claim 11, the applicants did not

174

choose to use the term "absolute value."
Right?
A. Yes.
Q. In fact, they just used the term exceeds, as we've discussed; right?
A. The term that they used is "exceeding."
Q. And as -- as we were just discussing, you would expect that if the applicants used two different words among the claims, that those would be given different meanings; right?
MR. TSUEI: Objection, form.
A. It would have been better had they used the same wording. I agree with that.
Q. Well, you previously noted, with respect to the last term we discussed, that you expect applicants are precise in their language; right?
A. Well, I said they should be precise in their language.
Q. And so you don't put any value on the fact that the applicants used "absolute value" in term 1 but then used a different term in claim 3 -- or claim 11?
MR. TSUEI: Objection, form.
A. I think my interpretation -- my understanding of it, and a POSITA's understanding,

175

would be that those two are -- those two wordings are essentially equivalent.
Q. And what is the understanding based on?
A. The understanding would be based on the fact that both PMOS and NMOS transistors could be used in these circuits and that the -- the common understanding that the -- the threshold voltage for PMOS is negative and it's a negative going system, so that exceeding -- when using PMOS, would be exceeding in a negative direction, whereas exceeding when using NMOS would be exceeding in the positive direction.
Q. So to be clear, you have to read "exceeding" differently in claim 11, depending on whether you're looking at PMOS or NMOS?
A. "Exceeding" means going beyond a certain point. And I think it's -- it's understandable and consistent going beyond the negative threshold voltage for PMOS and going beyond the positive threshold voltage for NMOS.
Q. When you say "going beyond the negative voltage in PMOS," you mean having a lower voltage; right?
A. Exceeding it in a -- in the negative direction, yes, having a lower voltage.

176

Q. Exceeding it in the negative direction is the same as having a lower voltage; right?
A. Yes.
Q. And in NMOS, you think that it has to exceed in the positive direction, meaning it has to have a larger voltage; right?
A. Yes.
Q. Now, in your understanding, does every claim have to read on every embodiment in the patent?
A. Does every claim have to read on every embodiment?
Q. Yes.
A. No.
Q. So is it possible that claim 11 only reads on the NMOS embodiments?
MR. TSUEI: Objection as to form.
A. I don't believe that to be the case, but it is true that every claim need not read on every embodiment.
Q. So it's possible that claim 11 could be directed to the NMOS embodiments; right?
A. I do not believe that to be the case; but, you know, it is true that every claim need not read on every embodiment.

177

Q. You can't rule that out, though, can you?
A. I think my understanding would be, and a POSITA's understanding would be, that this claim reads on both NMOS and PMOS.
Q. Which is based on what?
MR. TSUEI: Objection, asked and answered.
A. My opinion -- it's based on my understanding of the technology and my understanding of what a POSITA would understand regarding the technology.
Q. What is it about the technology that leads you to believe that that's how a POSITA would read this?
A. I'm sorry. What was the question?
Q. What is it about the technology and your understanding of the technology that leads you to believe that a person of ordinary skill in the art would read Claim 11 to cover PMOS?
A. Oh, because the -- the '615 patent says that PMOS is covered in -- in column 46, starting in line 4, "In the display unit according to the present embodiment, any of the hold transistors," et cetera, et cetera, "are of an n-channel

178

amorphous silicon. However, it may be a polysilicon thin film transistor or all of -- all of them may be n-channel types or all of them may be p-channel types. In the case where all are p-channel types, the only necessary -- it's only necessary that high and low on the on level and off level of the signals are inversed."
And so it -- it reiterates a common understanding of POSITAs, that you can substitute PMOS for NMOS. And when you do that, you have to invert the polarities. And in that case, the POSITA would understand that this invention could be implemented with PMOS.
And if so, then it would be a natural understanding that exceeding, and in -- in claim 11 would be for NMOS exceeding in the positive direction and for PMOS exceeding in the negative direction. Otherwise, the circuit wouldn't work.
Q. When you say "the circuit wouldn't work," it wouldn't work for PMOS; right?
It would still work for NMOS; right?
A. If you limited "exceeding" to exceeding in a positive direction, then it would only work for NMOS.
Q. Now, in support of your position, you

179

cite to column 23, line 64, of the '615 patent, and that's in paragraph 80 of your corrected declaration; right?
A. Sorry. Which -- which paragraph were we talking about? 82?
Q. No. In paragraph 80 of your declaration.
A. 80. Okay.
Q. Let me start over.
Let's go to paragraph 80. And let me know if you're there.
A. Okay. I'm there.
Q. In the second-to-last sentence of paragraph 80, you say, "This is how the term is explained throughout the '615 patent and the specification."
Right?
A. Yes.
Q. And the -- the term you're talking about is "exceeding a threshold value."
Right?
A. Yes.
Q. Okay. And then you have an excerpt from the '615 patent below paragraph 80; right?
A. Yes.

180

Q. Does the excerpt you provided use the term "exceeding a threshold value" anywhere therein?
A. No, it doesn't say "exceeding a threshold value" in that paragraph.
Q. So why is it that you believe that paragraph supports Solas's construction for exceeding a threshold there?
A. Oh.
Well, it says that -- that the Tr13 -- that the VPRE13 is higher than the threshold voltage V threshold 13 in -- again, in parens; "Namely, the absolute value of it is larger than" -- I believe they left out the word that -- "of the threshold voltage VTr13."
So they're -- they're saying that -- that VPR13, the absolute value of -- of VPR13 is larger than the absolute value of the threshold voltage VTr13.
And my reading of that, and a POSITA's reading of that, would be that the -- that the VPRE exceeds the threshold voltage in the positive direction for NMOS and the negative direction for PMOS.
Q. And to be clear, that paragraph doesn't

181

use exceeding a threshold value. It uses the words "higher than a threshold voltage"?
A. Yes.
Q. Are you equating the word "exceeds" with "higher"?
A. No.
I think it goes on to explain, "Namely, the absolute value thereof is larger than the absolute value of the threshold voltage VTH13."
Q. I guess I'm trying to figure out, though, why you think that that is saying what "exceeds" means.
A. It means it's -- it's further away from zero. VPRE is further away from zero than V threshold, in either the negative direction or the positive direction. That's what a POSITA would understand that to mean. That's what I understand it to mean.
If this were only -- if this were only drawn to NMOS, then they wouldn't have to have any explanation about absolute values. They could just -- if it was only drawn to NMOS, then they could just say, you know, a prevoltage is higher than the threshold voltage. But they don't say that. They go on to explain about the absolute

182

values to bring in both the possibility of PMOS and -- NMOS and PMOS.
Q. So if they wanted to talk about PMOS and NMOS, they would talk about absolute value; right?
A. That's one way of doing it.
Q. But if they wanted to talk about just NMOS, they would, for instance, say that the precharge voltage is higher than the threshold voltage?
MR. TSUEI: Objection, calls for speculation.
A. If they were only talking about NMOS, then they could simply say the VPRE is larger than the threshold voltage. The precharge -- if they were only talking about NMOS, they could simply say the pre- -- the precharge voltage is larger than the threshold voltage.
Q. And "larger," you mean a higher voltage?
A. Yes.
Q. And so if the patent had said that, would you then agree that the claim was directed at NMOS?
A. If the patent had said the -- that the precharge voltage was higher than the threshold voltage, then I don't see how it would work with

183

PMOS. So I would say that it effectively was limited to NMOS.
Q. If I give you a hypothetical: You have an NMOS transistor with a threshold voltage of 1 and I have a precharge voltage of negative 2, would that precharge voltage exceed the threshold voltage?
A. No.
Q. Now, if I look back at Solas's proposed construction, which says has an absolute value larger than that of a threshold value, doesn't negative 2 have an absolute value that's larger than 1?
A. The absolute value of negative 2 is larger than 1.
Q. Does that present an issue with Solas's proposed construction?
MR. TSUEI: Objection, form.
A. Give me a second here.
Yes, that would be a problem.
Q. I apologize. I'm just looking through my outline for a moment.
I wanted to go back to paragraph 31 of your corrected declaration for a moment. This is on page 10. If you can let me know when you're

184

there.
A. Yes, I'm there.
Q. If we look at paragraph 31, you talk about a light emission drive circuit that can apply a current control type or current drive type of light emission element emitting light at a predetermined luminance gradation sequence; right?
A. Yes.
Q. The current control type of light emission element you're discussing there, what is that?
A. What is the -- are you asking what is the light emission element?
Q. Yes.
You -- you talk about a current control type or current drive type of light emission element, and I -- I just want to know what that is.
A. Okay.
I'm referring to a type of light emission -- emission element where the -- where the luminance is proportional to the current flowing through it. That would be like an LED or an OLED or a -- an EL element.
Q. And so when you say "current control

185

type" or "current drive type," you mean that the light emission is in some way related to the amount of current that's going through?
A. Yes.
Q. And so when you talk about current control type here, that's not the same as when we were talking about -- earlier about current controlled circuits versus voltage controlled circuits; right?
A. That's correct.
Q. In fact, both a current controlled circuit and a voltage controlled circuit, they could both have current control type of light emission element; right?
A. That's correct.
MR. FRISCH: Why don't we take another break here.
THE WITNESS: Okay. About ten minutes.
MR. FRISCH: If you don't mind, I'm actually going to suggest 15.
THE WITNESS: Okay.
MR. FRISCH: Thanks.
THE WITNESS: Are we off the record?
MR. FRISCH: He's going off.
THE VIDEOGRAPHER: Off the record at

186

6:57.
(Recess in proceedings.)
THE VIDEOGRAPHER: On record, 7:20.
BY MR. FRISCH:
Q. Mr. Flasck, I would like to turn your attention now to page 37 of your corrected declaration, the term "light emission control section."
A. Okay.
Q. If you'll let me know when you're there.
A. Yes.
Q. Now, you understand that this was a term that the parties also proposed for construction in the HP litigation that you referenced earlier; right?
A. Yes, I believe so.
Q. And it was actually a term that the parties had agreed on in construction; and the agreed construction was "drive transistor"; right?
A. Yes.
Q. And that's the construction that Samsung has proposed in this litigation; right?
A. Well, they said it's indefinite and their alternative was "drive transistor."
MR. FRISCH: Can we pull up what was

187

previously marked as tab 12 and mark that as Exhibit 11.
(Exhibit 11 was marked for identification and is attached to the transcript.)
Q. Mr. Flasck, do you recognize Exhibit 11 as the Joint Claim Construction and Prehearing Statement in this case?
A. Yes.
Q. And you understand that this is a document that the parties filed that sets out their positions on the various terms that are being proposed for construction?
A. Yes.
Q. If we look down to page 3, towards the top, there's a heading that says, "U.S. Patent No. 7,663,615."
Right?
A. Yes.
Q. Okay. And the term "light emission control section" is the first term for the '615 patent?
A. Yes.
Q. And you see the two constructions, there's one on the left and one on the right next

188

to "light emission control section"?
Right?
A. Yes.
Q. And the one on the right is defendant's proposed construction; right?
A. Yes.
Q. And defendant's proposed construction is just "drive transistor."
Right?
A. Yes.
Q. Okay. So -- just to clarify, so Samsung's proposed construction in this case is the same construction that the parties agreed to in the HP litigation; right?
A. I believe that's right.
Q. And you had included that agreed construction in your HP declaration; right?
A. Yes.
Q. Okay.
MR. FRISCH: And why don't -- just to make things easier, why don't we mark a copy of that declaration. If we can bring in tab 6 and mark that as Exhibit 12.
(Exhibit 12 was marked for identification and is attached to the

189

transcript.)
BY MR. FRISCH:
Q. Mr. Flasck, do you have a copy of that that that you've been looking to?
A. I'm sorry. This is the -- what I'm calling the HP declaration? Yes.
Q. And -- and you recognize what's on the screen as Exhibit 12 as being your declaration from the HP declaration -- or the HP litigation; right?
A. Yes.
Q. And you can feel free to -- to take a look at your copy with respect to any of these questions, but you would -- just going back to my question I started with: You incorporated that agreed construction into your HP declaration; right?
A. Yes.
Q. And that's actually on page 20 of the HP declaration?
A. Yes.
Q. Okay. And you signed your HP declaration on page 48; right?
A. Yes.
Q. Okay. And you signed that declaration

190

under penalty of perjury; right? That's what it says right above your signature.
A. Yes.
Q. And you understood when you submitted that declaration that it might be relied upon by the Court; right?
A. Yes.
Q. And you understand that the Court does not have to accept a construction that has been agreed to by the parties; right?
A. Yes.
Q. Now, you didn't say anywhere in your HP declaration that you disagreed with that construction; right?
A. That's correct.
MR. TSUEI: Objection as to form.
Q. At the time you signed your HP declaration, did you disagree that the proper construction of light emission control section was drive transistor?
A. I understood that that was an agreed-to construction, and I -- I don't believe I offered an opinion on that. I just accepted that that was an agreed construction.
Q. And so you didn't think it was

191

important, when you put together your HP declaration, to think about the constructions that the parties had agreed to and note whether or not you disagreed with any of those constructions?
MR. TSUEI: Objection to form.
A. Again, when -- when I'm presented with an agreed construction, I generally don't delve into it much more than that.
Q. Now, you opined on other terms from the '615 patent in the HP declaration; right?
A. Yes, in both the -- in the HP dec- -- yes.
Q. And one of the terms, if you go down to page 42 of the HP declaration, that you opined on was the operation; right?
A. Yes.
Q. And the proposed construction that you were advocating for was plain and ordinary meaning, not indefinite. Within the claim phrase, quote, "A drive voltage for making the light emission control section perform the operation," end quote; the term, quote, "the operation," end quote, refers to, quote, "generating a light emission drive current having a predetermined current value in accordance with the electric

192

charges accumulated in the electric charge accumulating section and supplying the light emission drive current to the light emission element," end quote.
Right?
A. Yes.
Q. And so as part of construing the term "the operation," you were looking at the claim phrase as it says here, "a drive voltage for making the light emission control section perform the operation."
Right?
A. I'm sorry. Ask that question again.
Q. As part of your construction of the term "the operation," you were looking at the phrase from the claim "a drive voltage for making the light emission control section perform the operation"; right?
A. Yes.
Q. Am I correct that as part of putting together your opinions for the construction, you then would have been applying the term "drive transistor" for "light emission control section" to this claim phrase?
MR. TSUEI: Objection, form.

193

A. Sorry. Are you asking my considerations at the time that the HP declaration was made or the -- the Samsung declaration was made?

Q. So I -- I'm going to start over.

I'm talking about the HP declaration. And I'm specifically talking about the proposed construction on page 42.

A. Okay.

Q. And within that construction, Solas's proposed construction, it talks about how you're construing the term "the operation" within the claim phrase, as -- as you say, a drive voltage for making the light emission control section perform the operation.

Do you see that?

A. Yes.

Q. So you were analyzing the claim phrase as drive voltage for making the light emission control section perform the operation?

A. I don't think in my HP declaration that when considering that term, "the operation," I don't think I took into account whether the light emission control section was restricted to a drive transistor or if it were something other than that or more than that.

194

Q. To be clear, your Samsung declaration, the declaration for this litigation that we're -- we're here for today, that's the first time that you're noting that you previously accepted Solas's construction but did not agree with it; right?

MR. TSUEI: Objection, form, misstates facts.

A. I don't think I disagreed with Solas's construction for the operation in the corrected Samsung declaration.

Q. Perhaps, I can be more clear.

I meant in the declaration in this matter, this is the first time that you have offered the opinion that you accepted the construction of light emission control section to mean drive transistor but that you did not agree with it; right?

A. Oh. Okay. We're no longer talking about the operation. We're talking about the construction of the light emission control section?

Q. That's right.

A. I don't believe that the light emission control section was a disputed term in the HP time period or for the HP declaration. So in the HP

195

declaration, I did not object to the definition of the light emission control section being drive transistor.

So that this -- I was asked -- I -- in the Samsung matter, it was a disputed term, so I was asked to opine on that. So this is the first time that I have opined on my -- that I disagree with Samsung's definition of "drive transistor."

Q. And that's because, as you said in paragraph 94 of your corrected declaration in this matter, that you accepted, without agreeing, the light emission control section meant drive transistor?

A. I'm sorry. Paragraph 94?

Q. Yes. Your corrected declaration.

A. A second.

Okay. So I believe 94 -- paragraph 94 is correct.

Q. And paragraph 94 says, "In that prior litigation, I accepted, without agreeing, that light emission control section meant drive transistor."

Right?

A. Yes.

Q. And the "prior litigation" you're

196

referencing is the HP litigation?

A. Yes.

Q. Is there anything in your corrected declaration that you're accepting but have not agreed to?

A. My corrected deposition contains all of my opinions.

Q. Well, I'm -- so I'm looking at your corrected declaration for this matter, Exhibit 2, and I just want to know: Is there anything that you put into this declaration that you're accepting but have not agreed to?

A. Oh.

No. For -- the only -- the only agreed-to terms are for the '615 patent, which is gradation and the accepted constructions level, and I agree with that.

Q. In every embodiment that's described in the '615 specification, the light emission control section is shown as a drive transistor; correct?

A. Just a second.

Yes. That's correct.

Q. Okay. If you can turn to page 26 of your corrected declaration. I want to take a look at the term "precharge voltage." If you'll let me

197

know when you're there.
A. Okay.
Q. And Solas's proposed construction is plain and ordinary meaning; right?
A. Yes.
Q. What is your understanding of what the plain and ordinary meaning of precharge voltage is?
A. It is the voltage that the data driver applies that exceeds the threshold voltage of the drive transistor to the data line.
Q. If we look at claim 11 of the '615 patent -- if you can let me know when you have that back in front of you.
A. Okay.
Q. And if you look at the last "wherein" clause of claim 11 -- and I'm starting at the end of line 56, in column 48 -- claim 11 requires that the data driver applies a precharge voltage exceeding a threshold value of the drive transistor to the data line and the light emission drive circuit applies the precharge voltage applied to the data line to the electric charge accumulation section via the write control section."

198

Right?
A. Yes.
Q. Now, if we turn to Fig. 3A in the '615 patent, Fig. 3A shows an embodiment of the light emission drive circuit; right?
A. Yes.
Q. And it shows the operation of this particular light emission drive circuit during the precharge operation?
A. Yes.
Q. And element DL that's labeled here, that's the data line?
A. Yes.
Q. And Fig. 3A shows a voltage that's labeled VPRE being applied to the data line VL; right?
A. Yes.
Q. And VPRE is a precharge voltage; right?
A. Yes.
Q. And that's what the PRE stands for; right? It's pre for precharge voltage?
A. Yes.
Q. And this particular VPRE is connected to one side of the capacitor, CS, through transistor 12; right?

199

A. Yes.
I think in 3A, that's -- that's an illustration of the application of the -- just a second. Yes.
Q. And that's the bottom side of the capacitor, CS, at least as it's situated in this particular circuit diagram; right?
A. Yes.
Q. And it also shows a voltage VC at the bottom of Fig. 3A; right?
A. Yes.
Q. And VC is the voltage difference from one side of the capacitor to the other; right?
A. Yes.
Q. It's the voltage across the capacitor?
A. Yes.
Q. And Fig. 3A shows that VC is equal to a precharge voltage VPRE13; right?
A. Yes.
Q. Then it notes that VPRE13 -- actually, let me take a step back.
VPRE13 is the drive transistor's precharge voltage; right?
A. Yes.
Q. And when it says that VPRE13 is greater

200

than VTH13, the VTH13 is the threshold voltage of that drive transistor 13; right?
A. Yes.
Q. And as shown in Fig. 3A, the voltage VPRE13 must exceed the threshold value of the drive transistor, according to the equation here at Fig. 3A; right?
A. Yes.
Q. Now, you'd agree with me that the two precharge voltages we've been talking about, VPRE and VPRE13, they don't have the same value; right?
A. Well, they have the same value initially, when -- when it's applied. If we look at -- let's see.
If we look at -- there's probably a better figure, but if we look at Fig. 2, that's the -- the wave form for the -- for the voltage across the capacitor. It shows VPRE13, which is the voltage across the capacitor. And it starts off at VPRE, the applied voltage on the -- on the data line. The -- the value of VR -- VPRE13 is equal to VPRE, but then after that voltage is applied and the transistor is shorting out, that voltage VPR13 sags down to the threshold voltage of the drive transistor.

201

Q. So VP --
A. VP -- VPRE is the voltage that's initially applied to the -- to the bottom node of the capacitor. And then in the subsequent operation, the -- what's called here the threshold correction operation period, the voltage across the capacitor, which is VRP13 and starts off at VPRE, sags down to the threshold voltage, V threshold.
Q. So the voltage that's ultimately stored on a capacitor is not the same as VPRE; right?
A. VPRE is the -- is the predetermined voltage that's applied to the data line and applied to the bottom -- the bottom node of the capacitor in the precharge operation period.
Then in the -- so that at the end of the precharge operation period, VPRE13 is equal to VPRE. VPRE was a fixed voltage that was originally applied to the data line.
Then in the next period, the threshold correction operation time period, the -- the VPRE is -- is shut off, if you will. The drive transistor -- there's a -- it's shorting out. And that VPRE13, which is the voltage across the capacitor, which is the same as the voltage from

202

the gate to the source, collapses down to the threshold voltage of the drive transistor.
So VPRE is the -- is the cause, the initial cause, and VPR13 is the reason -- is initially VPRE, but then it -- then it sags down during that correction operation time period to V threshold.
So VPRE is the -- if you will, the ultimate cause or the ultimate -- the -- the initial voltage, which is the -- which is the precharge voltage.
VPR13 is the voltage across the capacitor, which is not fixed, and which sags down to the threshold voltage. It's the result of the operation after the -- after the precharge voltage is initially applied and then removed.
Q. I want to go back to your original declaration for a moment, which we had marked as Exhibit 1.
You have a copy of your original declaration on your computer that you've been working off of; right?
A. Yes.
Q. And the copy that you have on your computer is the one -- the copy of the declaration

203

you have on your computer is the one that you approved of and signed?
A. Talking about the HP declaration?
Q. No.
I'm talking about the -- you submitted two declarations in this matter, an original declaration and a corrected declaration; right?
A. Oh, I'm sorry. Okay. So we --
Q. I want to talk about the original declaration that was marked as Exhibit 1.
A. Oh, the original declaration. Okay.
Q. And you have a copy of that declaration on your computer that you've been looking at throughout the deposition?
A. Yes.
Q. And that's a copy of the declaration that you had approved and signed?
A. Yes.
Q. And I just want to go back to something we talked about earlier.
If you look at the screen right now, this is a page labeled Roman numeral II of the copy of the declaration that I have.
Does your copy of the declaration have this table of exhibits and abbreviations that's on

204

the screen?
A. That's -- is that page 3?
Q. It's page Roman numeral II. It's page 3 of the PDF, but page Roman numeral II.
A. No, I can't find the table of exhibits in -- in the declaration that I have in front of me.
Q. And you don't remember ever seeing the table of exhibits and abbreviations; right?
MR. TSUEI: Objection as to form.
A. I don't recall seeing it.
Q. And, to your knowledge, the copy of your declaration that you approved and signed didn't have the table of exhibits and abbreviations; right?
A. I can go back and look, but on the copy I have is labeled "final as sent claim construction declaration," and it does not have that table.
Q. What do you mean when you say you can -- you can go back and look?
A. I could, in principle, go back into my files to see if there was some draft of the declaration that -- that had that exhibits. But the -- unless there was a mistake in my files,

205

this is -- this is the one that -- that I signed and was sent.

Q. When you say "this is the one," you mean the one that you're looking at without that table of exhibits and abbreviations; right?

A. Yes.

MR. FRISCH: I have no further questions. Thank you.

MR. TSUEI: Can we go off the record.

THE VIDEOGRAPHER: Off record, 7:54.

(Recess in proceedings.)

THE VIDEOGRAPHER: On record, 8:00.

EXAMINATION

BY MR. TSUEI:

Q. Good evening, Mr. Flasck.

A. Hi.

Q. So thank you for bearing with us. I just have a couple of questions.

But before I begin, have you and I spoken today during the deposition during any break?

A. No.

Q. Okay. I'd like to start with the term that Mr. Frisch asked you about during his examination, specifically "exceeding a threshold

206

value."

Do you recall discussing that term in context of the '615 patent --

A. Yes.

Q. -- during Mr. Frisch's examination?

A. Yes.

Q. I'd like to share on the screen Flasck Exhibit 2.

MR. TSUEI: I'm sorry. Jaimie, I can share it myself.

Q. So, Mr. Flasck, I've got in front of me a page from your corrected declaration, beginning at paragraph 8. Are you with me?

A. Yes.

Q. During Mr. Frisch's examination, he asked you a hypothetical involving a NMOS transistor with a threshold value of 1 being driven by a voltage of negative 2.

Do you recall that hypothetical?

A. Yes.

Q. Would a person of ordinary skill ordinarily drive an NMOS transistor with a positive threshold value with a negative voltage value, say, of negative 5?

A. No.

207

The -- a person of ordinary skill in the art would drive an NMOS circuit with zero basic -- zero volts as VSS, as the low voltage. Then the threshold voltage would be some positive voltage above zero. And the -- the precharge voltage would then be a voltage above that, further from zero than that, so that all voltages in the circuit would be above zero volts with a PMOS circuit.

A POSITA would expect all the voltages to be negative; that is, the -- the high side voltage, if you will, would be -- you know, would be zero, and the threshold voltage would be a negative number, and the precharge voltage would then be a number that was more negative than the -- than the threshold voltage.

So the precharge voltage would be more negative than the -- than the threshold voltage. It would be unusual to have -- to have a -- an NMOS circuit with both positive and negative voltages. An NMOS circuit would generally have voltages at zero and higher than zero. And a PMOS would generally have voltages zero and below zero.

Q. Mr. Flasck, the description of NMOS and PMOS transistors and how they are driven,

208

specifically with respect to their respective categories of threshold voltages, would that description of NMOS and PMOS transistors be what a person of ordinary skill would have in mind when looking at the claims of the '615 patent?

A. Yes.

MR. TSUEI: Object to form.

A. Yes.

Q. Would it be fair to say, then, that where the claims of the patent, specifically claim 11, has the phrase "exceeding a threshold value," a person of ordinary skill would have in mind both PMOS- and NMOS-type transistors as being -- potentially being used to practice the invention?

MR. TSUEI: Objection to form.

A. Yes.

Q. Do you think it would be fair for -- I'm sorry. Strike that.

Do you think a person of ordinary skill would have in mind the edge case that Mr. Frisch presented to you during his examination regarding NMOS transistor with a positive threshold being driven by a negative voltage?

MR. TSUEI: Objection to form.

209

A. No. No.
Q. So let's back up and start with NMOS transistors.
Is the threshold voltage of a NMOS transistor, generally speaking, a positive value?
A. Yes.
Q. If the voltage being driven to that NMOS transistor is below that positive threshold value, does current flow easily through the transistor?
A. No.
Q. What happens when the voltage being driven to the NMOS transistor with the positive threshold is above the threshold value?
MR. FRISCH: Objection to form.
A. The transistor would begin conducting.
Q. Would the inverse of those steps be true for PMOS transistors?
MR. FRISCH: Objection, form.
A. Yes.
Q. I'm sorry. That was unclear.
Say you have a PMOS transistor, would the threshold voltage of a PMOS transistor generally be a negative value?
A. Yes.
Q. And if the voltage being driven to that

210

PMOS transistor with a negative threshold value is above the threshold value, does current flow easily through the transistor?
MR. FRISCH: Objection, form.
A. If you're asking if the gate is held at a value between zero and the threshold, the negative threshold value of the PMOS transistor, no current would flow through the PMOS transistor.
Q. And what would happen if the current being driven to the PMOS transistor has a value that is greater than that negative threshold value in a negative direction?
A. If a voltage is applied to the gate of the PMOS transistor, which is more negative than the threshold value of that PMOS transistor, then that transistor would begin conducting.
Q. The '615 patent, Mr. Flasck, to your knowledge, does it ever discuss that species of edge case that Mr. Frisch asked you about involving an NMOS transistor with a positive threshold being driven by a negative -- negative voltage?
MR. FRISCH: Objection, form.
A. No.
Q. Is that because a person of ordinary

211

skill in the art would understand that for the two species of transistors we're discussing, there are ordinary ranges of voltage being applied to those transistors in normal operation?
So, for instance, for NMOS, the voltage being driven to an NMOS transistor would be between zero and the threshold voltage value?
A. A person of ordinary skill in the art would understand that generally, in NMOS circuits, positive voltages would be used.
Does that answer the question?
Q. It does.
One additional question, though, Mr. Flasck. Would the person of ordinary skill ordinarily think that a circuit of the N type would be driven by a negative voltage value?
A. No.
In NMOS circuits, a person of ordinary skill in the art would -- would assume that the voltages were positive.
Q. Would the person of ordinary skill, starting with P-type transistors, make a similar assumption about the directionality of the voltages being driven to the P-type transistor?
MR. FRISCH: Objection, form.

212

A. In a PMOS circuit, a person of ordinary skill in the art would assume that the voltages were all negative.
Q. So turning your attention back to your proposed construction on the screen for the term "exceeding a threshold value," your proposal is: Has an absolute value larger than that of a threshold value.
Do you see that?
A. Yes.
Q. That language comes directly from the specification of the '615 patent; is that right?
A. Yes.
Q. So given our discussion regarding PMOS and NMOS transistors over the past five minutes, would you still agree that your proposed construction here makes sense and wouldn't be problematic?
MR. FRISCH: Objection, form.
A. Yes.
Q. And why is that?
A. Because if the circuit were NMOS, one would expect all of -- a person of ordinary skill in the art would expect all of the voltages to be positive, in which case the precharge voltage

213

would -- the absolute value of the precharge voltage would indeed exceed the absolute value of the threshold voltage.

And if PMOS were used, again, the -- the -- the precharge voltage -- the absolute value of the precharge voltage would again be larger than the absolute value of the threshold voltage, so that the -- the proposed construction would work with the understanding that with PMOS you're using negative voltages and with NMOS you're using positive voltages.

Q. Mr. Flasck, one of the first topics Mr. Frisch talked to you about today was the parties' competing constructions for the term "selection period" in the '042 patent.

Do you recall, generally, that discussion?

A. Yes.

Q. I'm going to share my screen now with a relevant part of Flasck Exhibit 2.

Do you see the portion of your corrected declaration on the screen, Mr. Flasck?

A. Yes.

Q. And you say, "Samsung's proposed construction uses the phrase 'ON voltage'"?

214

A. Yes.

Q. Do any of the claims of the '042 patent use the term "ON voltage"?

MR. FRISCH: Objection to form.

A. No.

Q. But the specification of the '042 patent does use the term "ON voltage." Would that be correct?

A. Yes.

Q. During the first part of your deposition, when you were being examined by Mr. Frisch, Mr. Frisch asked you whether or not you believed the '042 patent inventors defined the term "ON voltage."

Do you recall that discussion?

A. Yes.

Q. I'd like to turn your attention to paragraph 43 of your declaration. On screen is the top of page 15 of your corrected declaration.

Do you see that?

A. Yes.

Q. I'm reading here, which is from column 9 of the '042 patent, the following sentence: "The selection scan driver 5 individually applies to the selection scan lines X1 through XM, a

215

high-level (ON-level) ON voltage VON (much higher than the reference voltage VSS)..."

A. Yes.

Q. Do you see that?

A. Yes.

Q. Can you -- can you tell me what this portion of the '042 patent specification means?

A. Yes. It means that the -- that the selection scan driver, when it selects a scan line, drives the scan line gate -- scan line transistor gate to a high -- to a high positive voltage.

Q. So does Samsung's proposed construction use terminology from the '042 patent, specifically the phrase "ON voltage"?

A. Yes.

Q. And does the '042 patent, at least with respect to the embodiment, about which a portion of the specification is on the screen, say that VON is a voltage that is much higher than the reference -- reference voltage VSS?

A. Yes.

MR. FRISCH: And I am just going to object to the form of that question. I wasn't able to get it in before the answer.

216

Q. Mr. Flasck, during Mr. Frisch's questioning during your deposition earlier in the day, I got the impression that Mr. Frisch was saying or implying that the term "ON voltage," as it's used in Samsung's proposed construction, should not be so limiting as it's described in a portion of the '042 specification shown on the screen.

Did you -- do you share that perception?

MR. FRISCH: Objection to form.

A. I'm sorry. Ask that question again.

Q. I'll change the question.

If Samsung's expert or Samsung as a party were to argue at some future point that the term "ON voltage" means specifically a voltage that is higher than a reference voltage in the context of the patent, would you agree with that?

A. The specification says that VON is much higher than the reference voltage VSS.

Q. If this definition of "ON voltage" were accepted and Samsung's proposed construction of the term "selection period," which uses the term "ON voltage," were accepted by the Court, would that read out the P-type embodiments discussed in the '042 patent?

217

MR. FRISCH: Objection, form.
A. Yes.
Q. Are you aware of any reason why those P-type embodiments discussed in the '042 specification should be read out of the claims?
MR. FRISCH: Objection to form.
A. No.
Q. So, Mr. Flasck, I apologize on the record for what appears to be some confusion about the, let's say, final version or corrected versions of the declarations you submitted in -- in this case.
I have on screen Flasck Exhibit 2, which is the corrected declaration. This is the declaration which Mr. Frisch has been asking you questions on most -- for most of the day; is that right?
A. I believe so, yes.
Q. And you've been asked questions about a previous uncorrected version of your declaration several times today. Do you recall that?
A. Yes.
Q. Do the opinions expressed in this corrected declaration, which is Exhibit 2 of your deposition, differ materially in any way from the

218

opinions expressed in the previous uncorrected versions of your claim construction declaration?
MR. FRISCH: Objection to form.
A. No.
Q. And during the examination today by Mr. Frisch, you were not made aware of any material differences in the opinions expressed in the corrected declaration vis-a-vis the previous uncorrected declaration; is -- would that be fair to say?
MR. FRISCH: Objection, form.
A. Yes.
Q. Would it be fair to say, then, that the corrected version of your declaration attaches an updated version of your CV?
A. Yes.
Q. And also contains non-substantive changes; would that be fair to say?
A. I'm not sure what you mean by that. I don't think --
Q. Are --
A. -- that there are -- the only difference I can see between -- yes, you're correct.
Q. Do you recall talking about, with Mr. Frisch, the absence or presence of an exhibit

219

list from the two versions of the declaration you were shown today?
A. Yes.
Q. Does the absence or presence of that exhibit list affect in any way whatsoever any of the opinions regarding claim construction you've given in this case?
A. No.
Q. I'd like to briefly show for you on screen another term from the '042 patent, which is the "sequentially selects said plurality of selection scan lines in each selection period."
It begins at the bottom of page 17 of your corrected declaration. Are you with me, Mr. Flasck?
A. Yes.
Q. So in the context of this term, one of the topics you were asked about by Mr. Frisch was the applicability and relevance of another patent that shared some of the named inventors of the '042 patent. Do you recall that?
A. Yes.
Q. And you were asked questions on that topic, also in reference to the previous related term selection period, which I've scrolled up and

220

shown for you on screen.
Do you recall that?
A. Yes.
Q. Mr. Frisch asked you why it would be useful to look to the '414 patent mentioned in paragraph 47 of your corrected declaration in determining the correct construction of the terms of the '042 patent.
Do you recall that lengthy discussion as well?
A. Yes.
Q. Does the fact that the '042 patent and the '414 patent share named inventors present a reason why a person of ordinary skill might look to -- or at least look to the '414 patent to determine the meaning of terms used in common between the two patents?
MR. FRISCH: Objection to form.
A. Yes.
Q. With respect to the '414 patent, even if you were to assume the truth of Mr. Frisch's conclusion that the invention of the '414 patent was related to a selection period, would the 414's discussion of what a selection period is full stop be probative of what that same term means in the

221

'042 patent?
MR. FRISCH: Objection to form.
A. Not necessarily.
Q. Why?
A. Maybe I understood the question. Ask that question again.
Q. Sure. I'll rephrase it.
Mr. Flasck, do you recall Mr. Frisch asking you whether or not the invention of the '414 patent was related to a selection period?
A. As I sit here right now, I don't recall that.
Q. But that's okay, too.
Does, to your knowledge, the '414 patent ever define the term "selection period" in a way that's inconsistent with your proposal for what that term means in the '042 patent?
A. No.
MR. TSUEI: Okay. Mr. Flasck, I've got no further questions. Thank you.
MR. FRISCH: Mr. Flasck, I will have just a couple of follow-up questions.
EXAMINATION
BY MR. FRISCH:
Q. If you can just turn for a moment to

222

page 31 of your corrected declaration, Exhibit 2. If you can let me know when you're there.
I want to look at the term "exceeding threshold value."
A. Yes, I'm there.
Q. I just want to clarify one point that I thought I heard in that line of questions.
Solas's proposed construction says "plain and ordinary meaning, i.e., as an absolute value larger than that of a threshold value."
Correct?
A. Yes.
Q. Is the comparison that's meant to be captured in that plain and ordinary meaning construction that's listed here the absolute value of the precharge voltage to the value of the threshold voltage or the absolute value of the precharge voltage to the absolute value of the threshold voltage?
A. Okay. My understanding of the proposed construction was, first of all, predicated on either NMOS, where all the voltages were positive, or PMOS, where all the voltages were negative. And with that presumption, then my reading was -- my understanding was, quote, "it meant has an

223

absolute value larger than the absolute value of the threshold voltage."
Q. That was my understanding as well. I just wanted to make sure we're on the same page.
MR. FRISCH: With that, I have no further questions.
MR. TSUEI: Same here. Nothing further for Mr. Flasck from.
Me. So thank you, Mr. Flasck, for -- for your service.
MR. FRISCH: Thank you very much.
THE WITNESS: Thank you.
THE VIDEOGRAPHER: Time is 8:31, and this concludes today's deposition of Richard A. Flasck. We're off the record.
(Off Video Record.)
THE COURT REPORTER: Mr. Tsuei, I was just going to say: I have a standing order for Mr. Frisch, but I don't for you, at least that I know of. Does the office have that or did you want to guide me on if you want a regular delivery, a rough draft, any of that good stuff?
MR. TSUEI: I think Veritext has a three-day expedite. Let's do that and make

224

that a standing order.

AND FURTHER THIS DEPONENT SAITH NOT.
SIGNATURE RIGHTS RESERVED.
(Videotaped Deposition concluded at 8:31 p.m. EST)

* * * * *

225

CERTIFICATION:

I, April Reid, Shorthand Reporter in and for the State of North Carolina, hereby certify to the following:

That the witness, RICHARD A. FLASCK, was duly sworn by me, and that the transcript of the oral deposition is a true record of the testimony given by the witness;

That the deposition transcript was submitted on January 22, 2022 to the witness or to the attorney for the witness for examination, signature, and return to me by February 21, 2022.

That the amount of examination time used by each party at the deposition is as follows:

BY MR. FLISCH: 06:13:00

BY MR. TSUEI: 00:29:00

That pursuant to information given to the deposition officer at the time said testimony was taken, the following includes counsel for all parties of record:

226

ON BEHALF OF THE PLAINTIFF SOLAS OLED LTD.:

JAMES S. TSUEI, ESQ.
RUSS AUGUST & KABAT
12424 Wilshire Boulevard
Suite 1200
Los Angeles, CA 90025
(310) 826-7474

ON BEHALF OF DEFENDANTS SAMSUNG DISPLAY CO., LTD., SAMSUNG ELECTRONICS CO., LTD., AND SAMSUNG ELECTRONICS AMERICA, INC.:

JARED FRISCH, ESQ.
DANIEL CHO, ESQ.
BOB HASLAM, ESQ.
COVINGTON & BURLING, LLP
850 Tenth Street, NW
OneCity Center
Washington, DC 20001
(202) 662-6000

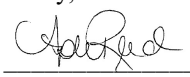
PLANET DEPOS VIDEOGRAPHER DREW HALTON
PLANET DEPOS REMOTE TECH JAIMIE HENSLEY

227

I further certify that I am neither counsel for, related to, nor employed by any of the parties or attorneys in the action in which this proceeding was taken, and further that I am not financially or otherwise interested in the outcome of the action.

Further certification requirements pursuant to rule 203 of TRCP will be certified to after they have occurred.

Certified to by me this day, the 22nd day of January, 2022.



April Reid, RPR, CRR, Notary Public
State of NC, County of Mecklenburg
Notary Registration No. 20012210079
Planet Depos, LLC
451 Hungerford Drive, Suite 400
Rockville, MD 20850
(T) 1.888.433.3767
(F) 1.888.503.3767
(E) transcripts@planetdepos.com

228

FURTHER CERTIFICATION RULE 203, TRCP.

The original deposition/errata sheet was / was not returned to the deposition officer on 2/21/2022;

If returned, the attached changes and signature page contains any changes and the reasons therefore;

If returned, the original deposition was delivered to custodial attorney;

That _____ is the deposition officer's charges to the Plaintiff for preparing the original deposition transcript and copies of exhibits, if any;

That the deposition was delivered in accordance with Rule 203.3, and that a copy of this certificate was served on all parties shown herein on _____ and filed with the Clerk.

Certified to by me on _____.

_____
April Reid, RPR, CRR, Notary Public
State of NC, County of Mecklenburg
Notary Registration No. 20012210079
Planet Depos, LLC
451 Hungerford Drive, Suite 400
Rockville, MD 20850
(T) 1.888.433.3767
(F) 1.888.503.3767
(E) transcripts@planetdepos.com